





Theodore Hermann.

SYLLABUS

OF

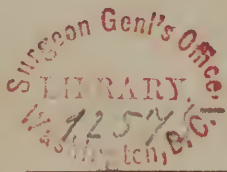
THE COURSE OF LECTURES

ON

MATERIA MEDICA AND PHARMACY,

DELIVERED IN

THE UNIVERSITY OF PENNSYLVANIA.



BY GEORGE B. WOOD, M.D.

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P R E F A C E .

THE following Syllabus was prepared with the exclusive view of facilitating the studies of those who attend the Lectures on *Materia Medica* and Pharmacy, delivered in the University of Pennsylvania. It can be understood and appreciated only in connexion with these lectures; and the author, therefore, deprecates any judgment upon its merits as an independent essay. One of his objects in publishing it is to supply the deficiencies of the work which he has adopted as the Text Book of his lectures. In the Dispensatory of the United States, many points are omitted which are deemed essential in a course of instruction upon *Materia Medica*, and the arrangement of its parts is not such as is best adapted for the convenient study of the science. But by taking the Syllabus as a guide, following the course which it indicates, committing to memory the facts which it presents, and, on the points which are merely hinted at, referring for information to the Dispensatory, in the order pointed out in the pamphlet, the student will be enabled, in connexion with the lectures, to obtain all the elementary knowledge on *Materia Medica* and Pharmacy which can be deemed essential. The author, however, does not wish to be understood as recommending his pupils to confine their reading within these narrow limits. On the contrary, he strongly urges on them the propriety, after having prosecuted the course of elementary study above referred to, of perusing all the respectable treatises on these branches of medical science which may be within their reach, not neglecting those of the French and German writers. They will thus be enabled to form a more enlightened judgment in relation to the accuracy of the facts and the correctness of the opinions which they may have been taught, and will at the same time acquire a stock of additional knowledge, which cannot fail to prove useful in the practical pursuit of their profession.



SYLLABUS OF LECTURES.

PRELIMINARY OBSERVATIONS.

MATERIA MEDICA is the science which treats of medicines; **PHARMACY**, the art of preparing them for use. Both are subjects of the present course of lectures; but the latter, belonging properly to a distinct profession, is considered of secondary importance, and treated of incidentally, and as subsidiary to the former.

Medicines are substances capable of producing, as an ordinary result, and by their own inherent power, certain modifications of the vital functions, which render them applicable to the cure of disease.

The proper mode of studying medicines considered. The objects of attention in relation to them are their origin; their modes of collection and preparation for market; their commercial history; their sensible properties, and chemical composition and relations; their physiological action or influence upon the bodily functions in a state of health, and, in connexion with this, their toxicological history; their effects in morbid states of the system, and the general indications they are calculated to answer in the treatment of disease; their particular applications in cases which do not fall within any general rule; and finally, their dose, their mode of administration, and the extemporaneous or officinal preparation to which they may be subjected.

Observations in relation to Pharmacopœias, or codes published by authoritative bodies for the recognition of standard remedies, and the regulation of the modes of preparing them for use.

The study of Botany recommended as preliminary to that of *Materia Medica*; and some acquaintance with Chemistry, Anatomy, and Physiology considered essential to a thorough understanding of the subject in all its relations.

An accurate knowledge of the standard weights and measures employed in the purchase and sale, as well as in the preparation and prescription of medicines, insisted on as a necessary accomplishment of the student of *Materia Medica*.

These weights and measures explained. (Sec U. S. Dispensatory.)

Modus operandi of medicines. The operation of medicines considered as *primary* or *secondary*, the former being their immediate action upon the system, the latter that which follows their original and characteristic impression, in consequence of certain physiological laws.

Primary operation of Medicines.

In the *primary operation* of medicines, they may, *first*, extend their influence over the system or to distant parts by means of nervous communication, or, *secondly*, they may enter the blood-vessels and act through the medium of the circulation, or, *thirdly*, they may act exclusively in the neighbourhood of their application.

1. The mode of operation by means of nervous communication explained and illustrated. This communication effected either by the propagation of the original impression to the brain, and its transmission thence to the part or parts operated upon; or directly through the medium of nerves connecting the part receiving the impression of the medicine with the seat of its characteristic action.

2. The operation of medicines through the route of the circulation proved by their existence in the secretions, and still more satisfactorily by their detection in the blood vessels, after having been taken into the stomach, or applied to various other parts of the body. The idea advanced that some medicines probably act in both ways, viz. by nervous communication or sympathy, and by absorption into the blood-vessels and circulation with the blood. Facts stated to show that medicines may be absorbed not from the alimentary canal only, but also from the bronchial mucous membrane, the serous surfaces, the cellular tissue, and from the skin, especially when deprived of its cuticle. The rapidity of the absorption is often very great, but various according to the part to which the medicine is applied, the state of the system at the time, and the nature of the medicine itself. Said to be greatest from the air cells of the lungs, to be inversely proportionate to the quantity of cir-

culating fluid, and to be favoured by the solubility, miscibility with the blood, and freedom from corrosive properties of the substance absorbed. Some observations in relation to the mode in which absorption is effected.

3. The exclusively local action of certain medicines, or of substances applied in a certain manner, alluded to, and illustrated.

In their primary action, medicines stated to differ greatly as to the parts which they affect; each particular medicine or class of medicines having a tendency to act on some one portion of the system, some one organ or set of organs, more than upon others. This tendency often independent of the part of the body to which the medicine is applied. Explained by the possession of different susceptibilities by different components of the frame, in consequence of which one portion receives impressions from the contact of a medicine, while another is wholly impassive to its action. In this tendency to particular parts, a ground of distinction between medicines pointed out. Certain substances act especially on some one of the minor systems of the body, as the circulatory, nervous, or absorbent; and as these pervade the whole frame, and are so interwoven in their sympathies as well as position, that one cannot be deeply affected without some participation of the others, such substances may be considered as general in their action. Others have an especial affinity for some one of the organs, as the stomach, bowels, skin, kidneys, or lungs; and as these organs are distinct in situation, the medicines affecting them may be said to be local in their primary action. Both the general and local remedies may be subdivided, according as they operate on some one of the systems or organs in preference to the others.

The opinion maintained, that medicines differ not only as to the part which they are disposed to affect, but also in the nature of their primary action upon the same part. Another ground of classification thus afforded. But notwithstanding this difference in the essential nature of their action, medicines almost universally, in their primary operation, either produce an excitement of the system, or some portion of it, above the healthy standard, or occasion a depression of action below that standard; in other words, are *stimulant* or *sedative*. The great majority of them are stimulant, and perhaps all may be so applied as to produce a direct excitement of some part or organ of the body. But it is not deducible from this fact that there are no direct sedatives. It is a mistake to consider medicines essentially stimulant or essentially sedative under all circumstances. Medicines produce peculiar effects not only from their own peculiar nature, but in consequence also of the peculiar susceptibilities of the body or its organs. Now these susceptibilities are not the same in different parts of the frame in health, nor even in the same part in different states of health, or under different circumstances of situation. A necessary inference is, that the same medicine must operate differently in different parts of the body having these different susceptibilities, and even that its operation upon the same part may vary with the susceptibility of the part. There can be no difficulty, therefore, in understanding that a medicine may be either stimulant or sedative, according to the part on which it acts, or to the condition of the system or some one of its organs at the time of its action. Instances illustrative of these statements adduced.

It is important to be acquainted with the various influences, which, by affecting the system, may modify the action of medicines. These influences treated of under the heads of 1. disease, 2. climate, 3. modes of living, 4. habit, 5. age, 6. sex, 7. temperament, 8. idiosyncrasies, and 9. mental operations. (See U. S. Dispensatory—Appendix.)

Secondary Effects of Medicines.

By this term are meant the changes which take place in any portion of the body, not produced by the immediate operation of the medicine, but dependent upon certain laws of the system, which determine peculiar actions or conditions as the consequence of antecedent actions or conditions. Arranged under the following heads:—

1. A state of depression following excitement;
2. Sympathetic excitement arising from local inflammation;
3. Removal of local irritations or inflammations on the principle of revulsion;
4. Cessation of diseased action in consequence of the removal of the cause;
5. Efforts made by nature to repair the damage received in consequence of the application of medicines to the body.

These effects highly important in the treatment of disease. Explained and illustrated. Administration of medicines next considered, including, *first*, the forms in which they are used, and *secondly*, the parts with which they are brought into contact, and the modes of applying them.

Forms in which Medicines are used.

Medicines are administered, in the solid state, in the shape of *powders, pills, troches, electuaries, and confections*; in the liquid state, in the shape of *mixtures and solutions*. Under the head of solutions are included the officinal preparations designated by the names of *infusions, decoctions, wines, tinctures, vinegars, syrups, honeys, and ozymels*. Medicines

are also used in the form of *liniments, cerates, ointments, plasters, and cataplasms*. Each of these forms of preparation commented on. For all essential information in relation to them, the student is referred to the U. S. Dispensatory, the Index of which will point out the place where he may find them treated of. Besides the forms above mentioned, medicines are sometimes applied in the state of vapour.

Parts to which Medicines are applied, and modes of applying them.

1. The *stomach*; but on this it is not requisite to enlarge.
2. The *rectum*. To this part medicines are applied with two objects—*first*, to produce alvine evacuation, *secondly*, to obtain their peculiar impression upon the system. In the latter case, as it is desirable that the medicine should remain in the bowels, it should generally be given in a small bulk, and may often be advantageously combined with opium, to prevent irritation and consequent purging. In both cases, the first impulse to evacuate the bowels should be resisted; and the operator should assist the efforts of the patient, when requisite, by pressing a warm folded towel against the part.

The quantity of medicines administered by the rectum, with a view to their peculiar action, is, as a general rule, about three times their ordinary dose; but as the relative susceptibility of the rectum and stomach is not always the same, it is best to begin with less than this proportion, when the medicine is very active. It is possible, moreover, that, while the susceptibility of the stomach is diminished by the frequent use of any particular medicine, that of the rectum may remain comparatively unimpaired; so that in cases where very large doses of an active medicine are habitually swallowed, it would not be proper to hazard the administration of a triple quantity per anum.

Medicines introduced into the rectum in the solid state are called *suppositories*—in the liquid, *clysters, injections, or enemata*. The mode of applying suppositories requires no comment. Enemata are either fluid, or composed of solid matter diffused in a liquid vehicle. In the latter case, it is important that the medicine, especially when irritating, should be equally diffused. Water is generally used as the vehicle. If an insoluble substance is to be suspended in it, some mucilaginous, saccharine, or other viscid body should be added. The quantity of the vehicle should vary with the nature of the medicine and the effects to be produced. If the enema is to be retained, the quantity should be as small as is compatible with convenient administration. If intended to operate upon the bowels, the bulk should be larger. One or two fluidounces in the former case, and a pint in the latter, are about the proper mean proportions for an adult.

3. The *skin*. The modes of application are numerous. As regards the skin itself, the cuticle may be retained or removed; as regards the medicine, it may be used in the form of vapour, that of liquid, or that of a soft solid, and may come in contact with the whole surface of the body or only a part.

Modes of applying vapour described.

Liquids are applied by lotion, bath, semicupium, or pediluvium. Observations on each of these modes.

Solids are applied by simple contact, in the form of cataplasms, ointments, cerates, and plasters; or by the aid of friction, in a soft or semifluid state; or to the surface deprived of the cuticle. The last is the most efficient mode of affecting the system through the surface. Almost all remedies which act in small doses, and are not very irritating or corrosive, may be used in this way. The circumstances under which it is proper to resort to the *endermic* method of administering a medicine, are, 1. an unwillingness of the patient to swallow or inability to retain it, 2. the liability to an injurious degree of irritation from its internal use, 3. the loss of the susceptibility of the stomach to its action from frequent repetition, 4. the necessity in which we may be placed of endeavouring to introduce it into the system by every accessible passage, and 5. the existence of violent or obstinate local affections, in which it is desirable to apply the medicine as near to the seat of disease as possible. The cuticle may be most conveniently removed by means of a blister, which may be from two to four inches square. The best positions are in general the epigastrium, or the inner parts of the extremities. Sometimes the immediate vicinity of the disease may be preferable; and sometimes a position over the course of the absorbents which run into the part affected. The medicine may be sprinkled on the denuded surface in the form of powder, either undiluted, or, if of an irritating nature, mixed with wheat flour or arrow-root. It may also be applied in the form of ointment, or, if in the liquid state, by means of pledgets of lint. The dose should be twice or three times that which would be requisite by the mouth.

4. *Bronchial tubes and pulmonary air-cells*. Substances applied to these parts are usually in the form of gas or vapour. Fine powders have been thrown into the lungs by being mixed with the inspired air; but this plan is not recommended.

Inhalation is effected either by diffusing the gas or vapour through the air respired by the patient, or by confining it in a bag furnished with a suitable tube through which the patient may breathe, or by means of an instrument called an inhaler.

Instruments for facilitating inhalation exhibited and described.

5. *Nostrils and adjoining cavities.* Medicines applied to this surface probably act in general by the strong sympathies which connect the organ of smell with other parts of the system. Two purposes are answered—1. a powerful excitement of the brain in cases of insensibility from want of cerebral action; 2. a strong revulsion from neighbouring parts.

The inside of the mouth is sometimes selected as a position for the application of remedies; but this is in reference chiefly to their local irritant action.

Attempts have been made to produce impressions upon the system through the *blood-vessels*. This plan not recommended.

Classification.

Advantages of classification stated.

Different plans recommended, according to the object proposed. That believed to be best adapted to the wants of the medical student and practitioner, is founded on the relations which medicines bear to the human system in the healthy state. Reasons for this belief stated. The following plan, founded on this basis, is adopted in the present course of lectures.

Substances used remedially act either on the living body, or on extraneous matters contained within the body, and serving as a source of disease. The former constitute the great mass of medicines, and it is to these alone, according to the definition before given, that the term medicine is strictly applicable. The latter, however, for the sake of convenience, may be considered as medicines, and are here ranked in a distinct group. The first division, therefore, is into medicines which act upon the living body, and those which act upon foreign matters contained within the body.

Of the medicines acting on the living body, there are two divisions; viz. *general remedies*, which operate on some one or more of the systems pervading the whole body, and *local remedies*, acting especially on particular organs.

The *general remedies* are divided into two sets, one having a stimulant or excitant, the other a sedative influence. The former are called *stimulants*, the latter *sedatives*.

Stimulants differ in the rapidity and duration of their action, some being slow and lasting, others rapid and transient. The former are called permanent, the latter diffusible stimulants.

Permanent stimulants are found to differ in one important point, some producing a constringing or contracting effect wherever they act, others exercising their permanently stimulant influence without this effect. Hence the division into the two classes of *astringents* and *tonics*.

Of the *diffusible stimulants* some act more especially on the heart and arteries, with little comparative influence on the brain and nerves, while others, together with their influence on the circulation, conjoin a decided operation upon the cerebro-spinal system. Hence the division into *arterial stimulants* and *cerebro-nervous stimulants*.

The latter of these classes may be separated into two subdivisions, founded upon the fact, that some of them produce a decided impression upon the proper cerebral functions, while others appear to act upon the nervous system at large, without special tendency to the brain. These subdivisions may be named *cerebral stimulants* or *stimulant narcotics*, and *nervous stimulants*, identical with those usually denominated *antispasmodics*.

Sedatives are divided into those which affect the heart and arteries exclusively, and those which also operate upon the nervous system. Hence the classes of *arterial sedatives* or *refrigerants*, and *nervous sedatives* or *sedative narcotics*.

Local remedies are divided into those which affect the functions, those which affect the organization, and those which are mechanical in their action.

The medicines affecting the function of a part, are 1. *Emetics*, acting on the stomach; 2. *Cathartics*, acting on the bowels; 3. *Diuretics*, acting on the kidneys; 4. *Diaphoretics*, acting on the skin; 5. *Expectorants*, acting on the lungs; 6. *Emmenagogues*, acting on the uterus; 7. *Sialagogues*, acting on the salivary glands; and 8. *Errhines*, acting on the nostrils.

Medicines which affect the organization of a part are divided into 1. *Rubefacients*, which produce inflammation; 2. *Epispastics*, which excite vesication; and 3. *Escharotics*, which destroy the life of the part, and occasion a slough.

Medicines operating mechanically include 1. *Demulcents*, which protect surfaces from the action of irritants, or mixing with these, obtund their acrimony; 2. *Emollients*, which soften and relax the skin; and 3. *Diluents*, which act by diluting the fluids of the body.

Besides the remedies included in the above classes, there are some, belonging to the first great division, so peculiar in their action, that they cannot be conveniently classified, and therefore deserve to be considered separately. These are ergot, nux vomica, arsenic, mercury, and iodine.

Medicines acting on foreign substances contained within the body, are included in the two classes of 1. *Antacids*, which neutralize acids; and 2. *Anthelmintics*, which destroy or expel worms.

TABULAR VIEW OF THE CLASSIFICATION.

Substances which act on the living body.

General remedies.

Stimulants.

Permanent stimulants.

Astringents.

Tonics.

Diffusible stimulants.

Arterial stimulants.

Cerebro-nervous stimulants.

Nervous stimulants, commonly called antispasmodics.

Cerebral stimulants, or stimulant narcotics.

Sedatives.

Arterial sedatives, or refrigerants.

Nervous sedatives, or sedative narcotics.

Local remedies.

Affecting the functions.

Emetics.

Cathartics.

Diuretics.

Diaphoretics.

Expectorants.

Emmenagogues.

Sialagogues.

Errhines.

Affecting the organization.

Rubefacients.

Epispastics.

Escharotics.

Operating mechanically.

Demulcents.

Emollients.

Diluents.

Medicines insusceptible of classification with others.

Ergot.

Nux vomica.

Arsenic.

Mercury.

Iodine.

Substances which act on foreign matters contained within the body.

Antacids.

Anthelmintics.

CLASS I.

ASTRINGENTS.

General Observations.

Defined to be medicines which produce contraction of the living tissues.

Their action explained. Every living tissue is possessed of contractility which requires only the appropriate stimulus to call it into action. This is afforded by astringents. Their operation is entirely vital, and independent of chemical or mechanical laws.

Their effect in parts to which they may be directly applied is obvious. Their action may extend also over the system, but is then less evident.

General effects from astringents—greater firmness of muscle; diminished calibre and greater rigidity of blood-vessels and absorbents, and consequently a harder and more contracted pulse; diminution or closure of secreting orifices, and consequently diminution of secretion. Some assert that they render the blood thicker and its coagulum firmer.

They produce moderate and permanent excitement of the organic life, but have little influence over the nervous system, or the functions of animal life.

Indicated in unhealthy discharges from the blood-vessels, whether hemorrhagic or by secretion, and in cases generally which depend on relaxation of the tissues.

1. Unhealthy discharges.

Here they operate by closing the secreting or bleeding orifices. They are not, however, applicable to all cases indiscriminately—only to those in which the discharge depends on weakness of the blood-vessels, or in which it is merely local or sustained by habit after the disappearance of the original cause, or when it is so profuse as to render its suppression desirable at the risk of aggravating the morbid condition in which it had its origin.

Contra-indicated by the existence of any morbid condition of which the discharge is a mere effect, and which it is calculated to relieve, and by the existence of any considerable local or general excitement.

In cases of excitement, if it be desirable to suppress a discharge, the use of astringents should, as a general rule, be preceded by bleeding or other depleting measures.

The particular complaints to which astringents are applicable, under this indication, are diarrhoea, chronic dysentery, diabetes, catarrh of the bladder, excessive sweating, sometimes, perhaps, dropsical swellings depending on relaxation, and all the hemorrhages. In all these cases, however, it is necessary to bear in mind the contra-indicating circumstances already mentioned.

Explanatory remarks.

2. Disorders connected with relaxation of the tissues.

These often consist in morbid discharges, in which case they fall under the preceding head. Sometimes, however, the system is left after acute diseases in a state of relaxation, in which astringents are useful, particularly in combination with tonics, even when no unhealthy discharge exists.

In chronic complaints such a condition also occasionally exists, either original or induced—as in scrofula and rickets.

The external use of astringents is governed by the same rules with some modification.

Applicable in cases of increased mucous secretions, after the subsidence of inflammatory action, as from the urethra, vagina, rectum, and nostrils—of excessive perspiration—of hemorrhages from parts within reach—and in cases of local relaxation, as in various venous distensions, prolapsed anus, uterus, and uvula, and flabby ulcers.

Their local application is admissible under circumstances in which their internal use would not be justifiable; as, in the former mode, more of their proper astringent effect is obtained, with much less of their general stimulation.

Locally used, astringents are sometimes beneficial even in cases of actual inflammation. They probably do good by producing contraction of the capillaries, and thus expelling the blood. But for this purpose, as a general rule, they are applicable only in the commencement of the inflammation, before the excitability has been much increased, or in the latter stages after it has become in some measure exhausted.

Astringents may be divided into two sections—the vegetable and mineral, the former having a certain identity of character depending on similarity of composition, the latter agreeing only in the possession of the common property of astringency.

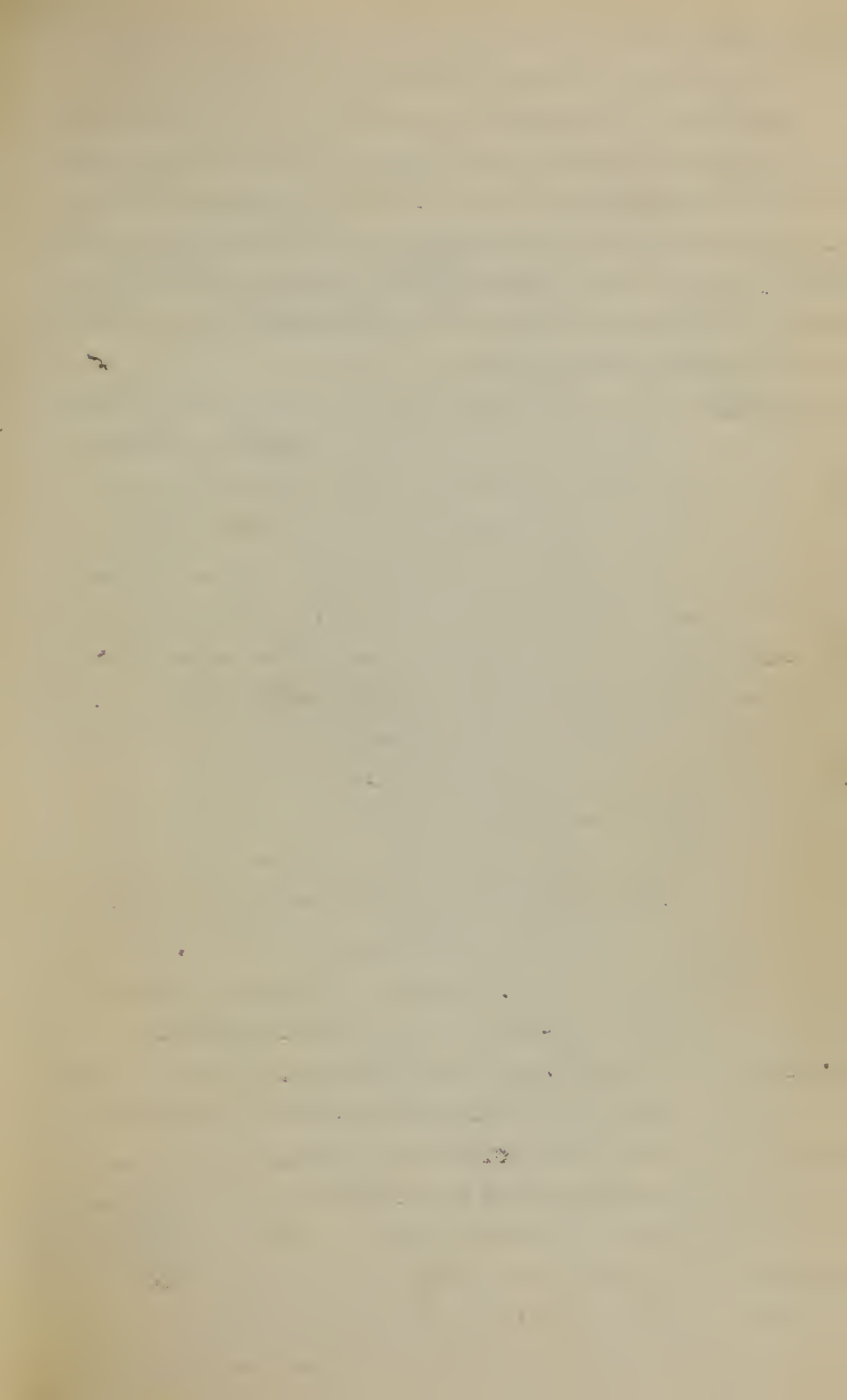
internal use, it being an efficient med. & recommend^d itself by its purity.

Note on galls. Carb^{le} of Soda forms an except. to the rule that "precipitates are formed by add^g together solutions of a metal^c salt with the infus of galls. It is therefore compat^{le} with the infus of galls & forms a good remedy ^{thus administered} in diarrh^a depend^t on acid subst^{cs} in the stom & bowels. the salt correct^s the acid while the gallie infus closes the secret vessels.

Boiled galls with bruised fennel seed form an excellent remedy somet^e in excessive flatul^{ce}.

The syrup of galls made as follows is an excell^t internal remedy where a powerful astring^t is call^d for there being no inflammatⁿ. best brandy ʒiv. finely powd galls gr^{ss} x. ^{(3ij) macerate a short time.} Macerate 12 hours sweeten with loaf sugar. set the mixt. on fire till the brandy be consumed. ^{the strong prop^r.} dose 1 teaspoon f^{of}.

The sy. & the brandy should be 1st mixed, then add the galls.



West India or Sam. K. believed to be the prod. of the *Coccoloba utilis* or ser. sickle grape a tree
soft high. fronds in sea coast large bunches of sp. berries from whence its name. stands by
ripe. a decoct of wood & bark. contain in large gourd. taken from the gourd it breaks
in fragments as large as a hazel nut of a rect. unform. surf smooth & shining. color reddish
brown or black. not so glistering or black as the E. India K. is. q. in mass. translucent & by
in thin splinters. broken by the fingers. easily pulver. pale. dull red much lighter colored
than the E. India. insid. astring. bitterish taste little sweet after taste. stains the saliva
adheres to the teeth when chewed 89% sol. in cold wat & 94% in offic. alcoh. this
latter probably dissolv. a resinous portion.

Stammy Bay K. concrete juice of the *Eucalyptus resinifera* or brown gum tree of N. H. island
withy tree. it flows from wounds & ex. dens in the air. not much used. 100 lb a year. white voyage
it is met in the markets of New Western Area masses form of tears. in mass. the Senegal G. The
pieces vitreous, black in mass. transparent when red in small fragm^{ts}, brittle, a resinous
as a 2 rect. lines. powder reddish brown. insoluble in water. in fine. sweet astring. taste.
3-4. it becomes cent. with cold wat. yielding a red solut. precipitating with lime water
oxid. iron & sesquichloride of iron but not with acetic or tart. emet. becomes gelat. with rectif^d
spirit & forms a red tinct. not precipitat^d by water. alcoh. dissolves the whole except a small
part. tinct. with a cent. part. of wat. makes a viscid. red precip. but with a large quant. only be-
comes slightly viscid. Catechu broken in small fragments is sold sometimes for K.

East India & Ambo K. most used & best. origin unknown, imported from the E. I.
or from Borneo, small angular, glistening fragm^{ts}. uniform consistence. large fragm^{ts} are
triag. & nearly black, splinters are transverse of deep garnet red. brittle easily pulver. powder
dark red. softens in the mouth. adheres to the teeth. stains saliva blood red. 70% tannin
& pec. line extractive, 24 red gum, 1 in 4. water. Vanquelin (contains catechin
or catechuic acid. A. N. Buchner) Taste. raw & chem. res. for the pressed spec.

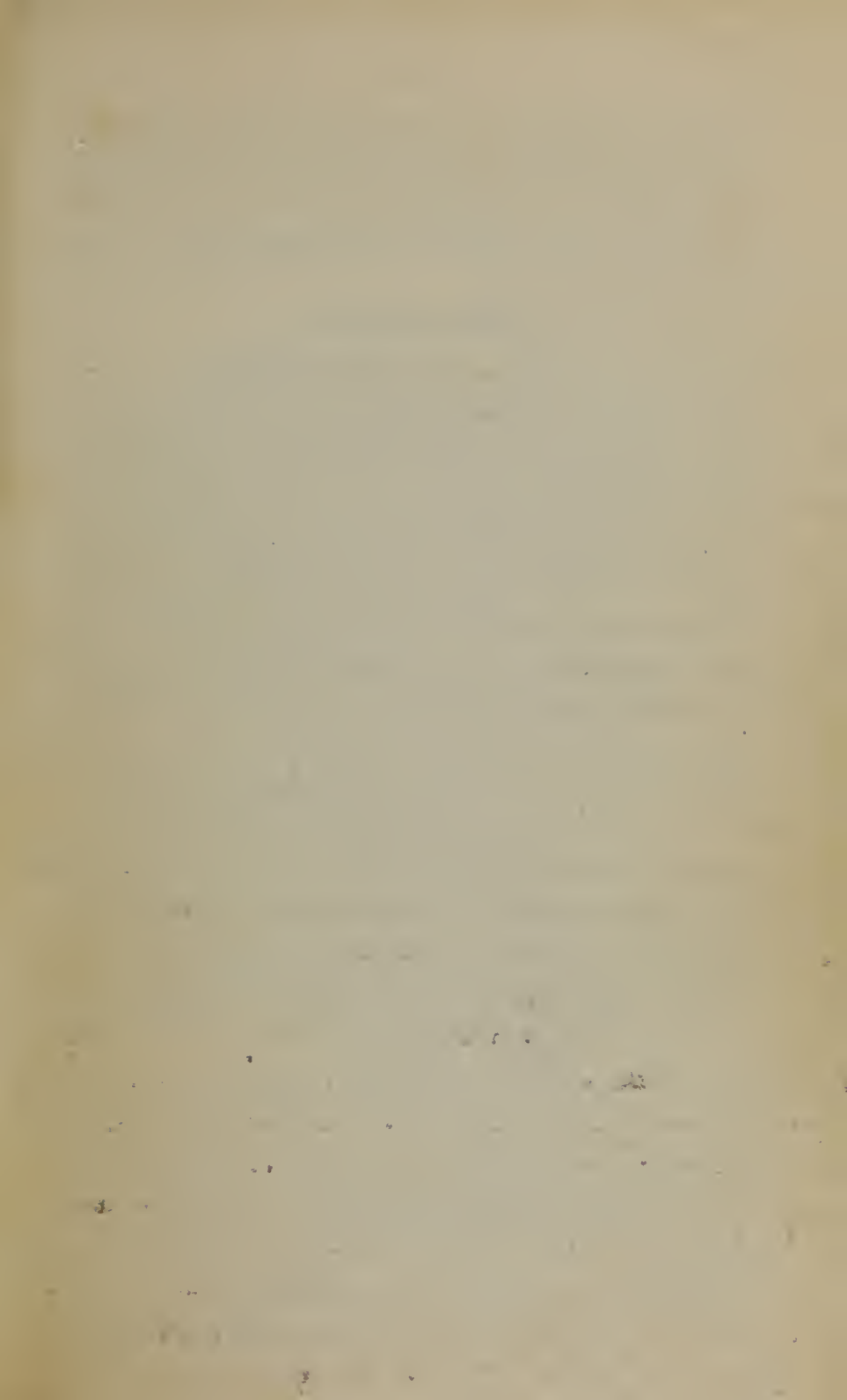
Med. Prop^{ties} powerful astring. used for suppress^d morbid discharges. in diarrhoea & unattend^d
by fever or inflammation. an excell^t adjunct to opium & the abs. & vent. med. a few write add it
to the chalk mixt. in chron. dysent. leucorrhoea & diabetes. passive hemorrhages of the
uterus. Infus. made by pouring boiling water 1 3 viii on 3 ii of the extract & straining when cool
the proportion of alcoh. in adre of the tinct. renders it more suitable for use. ^{if long kept becomes}
^{of a jelly like consist^y}
^{consequently unfit for use.}
Local applicat. the infus. is useful as an inject. in leucorrhoea & other gonorrhoeal discharges
into the nostrils suppress^d hem. of the sch. & c. me. also the press^d juice of the fruit
press^d against a wound in the p^lte suppress^d v. l. & hemorrh. used also as an
applicat. to phlegm. of all the vegetative astring^t kind is most frequently used for



Salvia.

Almost all oaks, notice the gall but the *D. infectoria* is recent only. it is a small tree or shrub 6 ft high crooked. leaves obtusely toothed, smooth, bright green on both sides, stand on short foot stalks. Acorn elongated, 2 or 3 times longer than the cap, smooth. the inf is sessile downy & semi-grows according to Oliver through Asia Minor from the Tiber to the confines of Persia. Others have found it in Armenia & Kurdistan also in Avarania & through central Asia. Origin The *Gynips quercus* of Linnaeus, the *Diplocephus Salicis* of Geoffroy a hymenopterous insect mfl. sawn cut body, dark antennae upper part & abdomen shining brown pierces the young branch these capons its egg. a tumour soon raised which it has no proper vessel in the egg becomes a worm & eats its way out escaping a fly. The galls of France & south of Eur. are smooth shining & reddish, surf little raised & never brought to the U.S. Properties nearly round, size from a pea to a cherry, studded with small tubercles. the intervals being smooth. the herb is the Blue sal. col. extern: dark bluish or lead col sometimes with a greenish tinge intern: whitish or brownish, hard, solid, brittle, with faintly fract. striated text. small cavity in centre, indicat^g the undevel^d & dead insect. powder light yellowish white. the white gail is larger nearly white or grayish, loose text. large cavity & pierced for the exit of the fly. Galls are inodorous, bitter & of astring^t taste. their soluble part is taken up by hot time, their weight in wat. the residue being tasteless. Alcohol dissolves 7 parts in 10, ether 5, a saturated decoct. of galls deposits on cooling a copious pale yellow precip. The infus. or tinc. affords precip. with sulph. & mineral acids, lime wat. carb. ammon. carbon^{at} potash. with most of the metallic salts as acetate & subacet^e of lead soluble of copper & in the nitrates of sil. & more. 5th of tart. & pot. as with veget. alkalis as infus. of Peruv. Bark, columbo. opium &c. forming insoluble compounds. Solub^l of gelatin precipit. also. This inf. & salts red^d & litmus paper is made orange by nit. acid, milky by corros. chlor. of mercur. heat is given out & eff^{er} in ammoniac. precipit. more of these reach galls an antidote to tartar emet. & those vapours which depend for their activity upon organic alkali is sometimes ^{used} for rheumatics. The infus. & decoct. used as gargle, lotion or inject. Part fine galls used to draw out the must & set in a hemoroidal secretion & to draw out the 20 or several times ^(Note page 3) ^{see} ^{drino.}

The *g. African.* introd. & describ^d by Forster & Gill came from the *Paeonius cinerascens* a tree growing on the west coast of Africa. was in bunches of size 1/2 gins & eng^l or dragons blood & very like in appearance, were hard, brittle, opaque & almost black minute fragm^{ts} reddish & transparent like garnet. inod. very astring^t & sweetish, 5 or 6 out of 7 sol^d in wat. forming a deep red astringent infus. is doubtless a concrete juice exud^d & spont^l from wounds in the bark & hardening in the air.



Injection in gonorrh. Bannan Dis. Clavet & W. 371

Quercus, Alba & Tinctoria.

There are about 80 species of the *Quercus*, 30 to 40 of which are found in the U. S. The *Q. robur* or com. Europ. Oak & the *Q. pedunculata* or Eur. white O. are admitted by the British colleges & are to be found accords to Michaux, all over Eur. the north of Asia & the north of Africa. Our *Q. Alba* approaches much in charact. the *Q. ped.* it is of large growth, wide spread branches cover'd with a whitish bark, leaves reg. & lig. divided into oblong, obtuse, entire lobes, often narrowed at their base, the full grown are smooth & light green on their upper surf. & glaucous beneath, acorns large, ovate, contain'd in rough shagreen'd grayish cups & support'd singly or in pairs upon peduncles abt. 1 inch long. very common in the Mid. States, deprived of its epidermis is light brown coarse fibr. text. not easily pulv. feeble sour, rough, astringent & bitter taste. sol. in wat & ale. The ppl. sol. in gnd. tannin, gallic acid & extractive matter, the inner bark coat'd most tannin, the mid. less, the outer scarcely any Vauquelin states that the infus. of O. bark does not like that of gallic precip. Tart. Smet.

Q. tinctoria. 30 or 90 ft high bark deeply furrow'd dark brown col. leaves ovate oblong, pubescent, light & sinuated with oblong, obtuse, mucronate lobes biennial fructificat. acorn globose, flatt. at top in a saucer shap'd cup, bark is more bitter than other Oaks, stains the saliva yellow. The ciner. in sequent when boiled in wat. yields Quercitron. wat. thus col'd is of a brownish yell. deepens by alkalis, bright. by acids. Med. prop. Astringent, somewhat tonic, good in inter mitt. fever, obstinate chrem. diarrhoea & cert. forms of passive hemorrhage, not much used internally when a cond. tonic & astringent effect is desired & the sum. is incisive to rect. med. the decoct. used as a bath is partic. benefic. for children, also in marasmus, scrophula, interm. fevers, chrem. diarr. & cholera infantum. used as inject. in leucorrhoea, wash in prolaps. aneur. hemorrhoidal affect. gerate in slight inflam. of the f. ures attenu. with probap. urula. The powder in portice good for external gangrene & mortificat. the inf. is. in m. t. uers. with a wash for fleshy ulcers. given internally in powder. vide print the *Q. Alba* is preferably given internally & is less irritatg. coast. acorns good for scrophula.

The vegetable astringents owe their peculiar properties to a proximate principle called tannin or tannic acid, which is found in all of them. They differ only in the proportion of this principle, and in the character of the other ingredients with which it is associated.

The sensible and chemical properties of *tannic acid*, its relations with other medicinal substances, and its medical properties and applications described. Dose, 3 grains every 3 or 4 hours.

In relation to mineral astringents, as they have nothing in common which does not belong to the whole class, each being distinguished by peculiar properties, no general observations are required.

1. Vegetable Astringents.

WHITE-OAK BARK.—*QUERCUS ALBA*. U. S.

BLACK-OAK BARK.—*QUERCUS TINCTORIA*. U. S.

Oak bark derived from different species of *Quercus*. *Quercus alba* or white oak, and *Q. tinctoria* or black-oak, the species officinally recognised in this country.

Description of white-oak bark. Its sensible properties and relations to water and alcohol.

Chief ingredient, tannic acid, which is most abundant in the inner bark, and in that gathered in spring.

Description of black-oak bark. Its sensible properties and relations to water and alcohol. Chief ingredients, tannic acid and a colouring principle called *quercitrin*.

Medical properties and internal use.

Black-oak bark less disposed to occasion constipation than white-oak bark. Sometimes even laxative. Both more used externally than internally.

Particular applications as external remedies.

Used in powder, decoction, and extract. Dose of the powder, 30 grains; of the decoction, fʒij.; of the extract, 20 grains.

Other parts of the oak possessed of similar properties; but more feeble. The leaves and acorn cups may be substituted for the bark.

Acorn highly astringent, but also more bitter. Uses, and mode of preparation.

GALLS.—*GALLA*. U. S.

Excrescences on the young branches of *Quercus infectoria* and other species.

Locality and description of the tree.

Mode in which the gall is produced.

Brought from the Levant and the East Indies.

General characters, including size, shape, and nature of surface.

Two varieties—*blue galls* and *white galls*. Difference between them.

Sensible properties, and relations to water and alcohol.

Most interesting ingredients, tannic and gallic acids. Virtues depend chiefly on the former.

Substances with which galls afford precipitates, and with which they are incompatible in prescriptions.

Medical properties and uses. Chiefly employed externally.

Used in powder, infusion, decoction, or tincture. Dose of the powder, 10 to 20 grains; of the infusion, made in the proportion of half an ounce to a pint, fʒij.; of the tincture, from fʒj. to fʒiij. The tincture more used as a test than as a medicine.

KINO. U. S.

Varieties.—1. African kino; 2. Jamaica kino; 3. Botany Bay kino; 4. East India, or Amboyna kino.

Supposed source of each variety.

The East India kino most used—probably an extract.

General characters of kino, including shape and size of the fragments, nature of the surface, colour of the powder, &c.—sensible properties—relations to water and alcohol.

Interesting ingredients, tannic acid and extractive. Virtues depend on the tannic acid, which is of the variety that affords a dark greenish precipitate with sulphate of iron.

Incompatibles same as those with galls.

Medical properties and uses. One of the vegetable astringents best adapted for internal use.

Used in powder, infusion, and tincture. Dose of the powder, 10 to 30 grains—of the infusion, made in the proportion of 2 drachms to 6 fluidounces, from fʒss. to fʒiiss.

Objection to the tincture.

CATECHU. U. S.

Extract of the wood of *Acacia Catechu*—perhaps also from other sources.

Locality and description of *A. Catechu*.

Mode of preparing catechu, its aspect, colour, odour, taste, fracture, and other physical properties—the colour of its powder, and its relations to water and alcohol.

Impurities.

Chief ingredient, tannic acid like that of kino, with a little extractive.

Chemical relations the same as those of kino.

Dark coloured catechu said to contain most tannic acid.

Medical properties and uses.

Kino preferable for internal use, as purer.

Used in powder, infusion, and tincture. Dose the same as that of kino. Dose of the tincture from fʒss. to fʒij.

RHATANY.—KRAMERIA. U. S.

Root of *Krameria triandra*.

Character of the plant and place of its growth.

Form of the root—sensible properties—difference between the cortical and ligneous portions—colour of the powder—relations to water and alcohol, and the colour imparted by it to these liquids.

Active ingredient, tannic acid resembling that of kino.

Medical properties and uses essentially the same as those of kino and catechu. Much used, particularly in uterine hemorrhage.

Used in powder, infusion or decoction, tincture, and extract. Dose of the powder, 20 to 30 grains—of the decoction or infusion, made in the proportion of an ounce to a pint of water, from fʒj. to fʒij.—of the tincture, from fʒj. to fʒij.—of the extract, 10 or 15 grains. The extract injured by much heat in its preparation.

LOGWOOD.—HÆMATOXYLON. U. S.

Wood of *Hæmatoxylon Campechianum*.

Character of this tree and place of its growth.

State of the wood as imported, and as kept in the shops.

Sensible properties of logwood, and relations to water and alcohol. Effect of exposure on the colour.

Characteristic ingredient, a peculiar colouring principle called *hematin*.

Medical properties and uses.

Employed in decoction and extract. Dose of the decoction fʒij.—of the extract 10 to 30 grains.

CRANESBILL.—GERANIUM. U. S.

Root of *Geranium maculatum*—an indigenous perennial herbaceous plant, growing in woods.

Shape and general aspect of the root, its sensible properties, and relations to water and alcohol.

Active ingredient, tannic acid.

Medical properties and uses.

Given in powder and decoction. Dose of the powder 20 to 30 grains—of the decoction made by boiling one ounce in a pint and a half of water to a pint, from fʒj. to fʒij. Sometimes boiled in milk.

BLACKBERRY-ROOT.—RUBUS VILLOSUS. U. S.

DEWBERRY-ROOT.—RUBUS TRIVIALIS. U. S.

Roots of *Rubus villosus* and *R. trivialis*—similar in medical properties.

Both plants indigenous—former an erect prickly shrub—latter a creeping briar.

Shape and aspect of the roots. Virtues chiefly in the cortical part. Smallest roots, therefore, best. Sensible properties and relations to water and alcohol.

Active ingredient, tannic acid.

Medical properties and uses.

Usually given in decoction—made by boiling one ounce in a pint and a half of water to a pint. Dose fʒj. to fʒij. Dose of the powder 20 or 30 grains.

UVA URSI. U. S.

Leaves of *Arbutus Uva Ursi* or bear-berry, a small, trailing, evergreen shrub, indigenous in the northern parts of the old and new continents, and growing in the United States as far south as New Jersey.

Distinguishing characters of the dried leaves—colour, smell, and taste—colour of the powder—relations to water and alcohol.

Catechu.

Acacia Catechu. a native of the E. Indies, Hindostan the Burman Empire, also in Siam &c. Tree 12 ft high, trunk 1 ft thick summit by many close branches covered with a thick, rough brown bark, leaves stand alternately upon the young branches composed of from 15 to 30 pairs of pinnae 2 inches long, each with 40 pairs of linear leaflets covered with short hairs. at the base of each pinnule is a small gland on the common stalk. 2 short recurved spines are attached to the stem at the base of each leaf. flowers in dense spikes arise from the axils of the leaves are 4 or 5 in. long fruit lanceolate, compressed smooth brown port. undulate thin margin, contains 6 or 8 round flattened seeds, which chewed give a nauseous odour. The drug formerly known as *steria Japonica* Preparation. cut off the outside white wood, reduce the interior brown or reddish port. to chips & boil them in unglazed earthen vessels, evaporate the decoct first by a fire heat, then by the sun. spread it while soft upon a mat or cloth & divide it into squares & cones in various shapes from the E. Each piece from a size of 2 to near 1 lb. smooth dark brown externally, faint reddish brown more frequently internally sometimes nearly black some of brown again solid, some fractured of thin & even ones the solid is shining. Preparation from Burman Empire, make a 1 lb. cut in halves & 2 lb. cakes compressed shining port. Portunius cat. in small grains resembles kino & is exactly kind. Indian *Phaleria* from Behar & Northern India. 3 in. squares, cut into brown, in balls from Bombay Properties externally with brown ± dark, interior from pale red or all brown to dark livered, sometimes near in black again cut if for use or rarely dulled like an rotten wood or ashing, bitter & a sweet. brittle, fracturing again & in moist shining the latter is better, powder colour of iron rust. soluble in water & alcohol. Catechu contains gum arabic, sticks &c. 374. Dose, obtained from 200 parts. Dose, cat. 100 tannin 63 extractive, 13 mucilage, 10 insol. residue, the tannic acid precipitates the salts of iron greenish black chemie. prop. as those of kino. Med. prop. Tonic, astringent, used in diarr. dependent on relaxation of the intestine, exhalation & passive haemorrh. particularly from the uterus, dissolved in the mouth should for relaxation of muscular irritations of fauces, in powder for many gums, sprinkled on indurated ulcers, used as ink for or secret as insect in gonorrh. & leucorrh. & thrown in the nostrils arrests epistaxis. dose gr. x to 5½ often repeated given with sugar, gum arabic & water. Catechu signifies the juice of a tree.

Bhatany — Hamamelis.

Hamamelis, a shrub, having a long, branchy, spread root of blackish red col. with a round procumbent dark col. stem with many branches; the younger ones leafy & covered with soft hairs of silky white appearance. leaves few sessile, oblongate, point entire, hairy as the branch. flowers like cat. stand singly on short pendulous at the axils of the upper leaves. 3 stamens, 4 leaflets to the rectary, the 2 upper spatulate the 2 lower shorter & roundish. fruit globose, size of a pea, surrounded by red brown prickly, furnish with one or 2 seeds. Native of Peru, flowers at all seasons partic. in Oct. & Nov. collect after the rains.

Alum is taken in pill or solut. to prevent nausea mix with some aromatic wat. for colica pict.
dose from ℥ss to ℥i in solut every 3 or 4 hours. A solut of ℥ss to ℥i Alum to Oj of Wat. Sweet⁹ with honey
makes a convenient gargle. asa Collyr. griv. or vior viii to ℥℥i of wat. To make a whey boil ℥i
alum with Oj milk, strain to separate the curd. dose a wineglassful contain^g Alum gr 15. The
curd is somet^e used as a stimulat^e applicat. in hordeolum when suppurat has begun but goes on slowly.

Plumbum.

Metallic lead is not officinal. found in nature as an oxide, a sulphuret called galena & in saline
state as native sulphate, phosphate, carbonate, chromate, molybdate, tungstate & arseniate
galena is very abundant the pure metal extract^d by melt^g the ore in contact with charcoal. Lead
region in the U. S. from Wisconsin to red river in Ark^{as} & 150 miles broad. Med prop^s. Its effects
in various combinst are sedative & astring^t, used internally for reducing vascular act. & resti
cining inordinate discharges, externally as an abater of inflam. introduc^d gradually into the syst^e
by work^g in the metal or by constant doses produces lead colic as apoplectic sympt. & partial
& incomplete palsy gen^l of the upper extremities, also salivation. Its constitut^e effects are indi
cated by a lead blue line at the edge of the gum round 2 or more teeth. Lead palsy gen^l attend^d
with dyspeps. constipat. tendency to colic, lassitude & gloominess of mind. treat^d by tonics, aper
ients, exercise & discontinu^g of the ~~ex~~ ^{ex}. Sulph. acid prepar^d like lemonade used internally
& externally prevents lead colic. Workmen in lead should bathe frequ^{ly}, avoid intemp
erallways eat before work^g in the morning.

Note on Aquaboscæ. Its most frequent & useful applicat. is as an ingredient in collyr.

Properties. The root is alone official: comes in pieces from size of a goose quill to 1 inch in thick-
ness of different lengths & various shapes of ten cylindric. & 2 to 3 ft. long. 3 met^s several radicles are attached
to one head of from 1/2 in to 2 in in diameter. & have a dark reddish brown, slightly lobed, easily separ-
able bark & a center woody reddish or reddish yellow. Inodor. bitter astring^t. slight^{ly} sweetish
taste connect^d with its med. prop. stronger in the bark than the wood consequently the small roots
are the best. Powder reddish col. its virtues are extract^d by water & alcohol which gives a deep red-
dish brown col. cold wat. by displacement or percolat. extract its astringency. infus. is deep red, which
on evap^{or}at. yields an almost perfectly solub. extract. it yields also to boiling wat. by macer^{at}. gives
a turbid liquid on cooling from a deposit of apotheme taken but the wat when heat^d alcohol dissolves
a larger part of the root than wat. but contains like the decoctⁿ an excess of apotheme &
consequently is less prefer^d than the cold solut. contains Tannin, lignin, minute quant^y of
gum, starch, saccharine matter & krameria acid. The tannin is found in 3 states. 1^o pure, color^{less}
2^o apotheme, no astringency & insol. by the act. of the air. 3^o extractive or solub. state of tannin & its
apoth^{em}e. & forms the coloring part. incompatible with most of the metallic salts. Used for fissure of
anus, ^{also} prolap^s a n^ove. dose of symp. $\pm 3ss$. It is a very frequent addition to the chalm mixture.

Hæmatoxylon.

Native of Campeachy, shores of Honduras bay & tropical America generally. tree 24 to 50 ft
high, trunk ^{increases} over 20 in diam, crooked, covered by dark ^{rough} bark. sap wood yellow. interior
deep red. leaves alternate, abruptly pinnate, composed of 3 or 4 pairs of sessile, nearly oblongate,
obliquely ^{nerved} leaflets. flowers in axillary spikes near the ends of the branch. brownish purple calice
& lemon yellow petals. odour resembles that of the S. quill. imported in logs deprived of sapwood. black^{ish}
brown col. found in shops in chips or coarse powder. Properties. hard, compact, heavy. deep
red, becomes dark by exposure; slight peculiar odour, sweet & slight astring^t taste. colours
water & alcohol. boiling water takes more col. than cold. affords precipitates with sulphuric
nitric, muriatic & acetic acids, with alum, sulph^{ur} of copper, acet. of lead & sulph^{ur} of iron giving in this
case a bluish black precipitate. precipitate lime wat. & gelatin. logwood contains a volatile oil and
oleaginous or resinous matter, tannin, a brown subst. sol. in alc & insol. in wat & strong a-
cetic acid. sulph^{ur} resembles gluten, free acetic acid, various saline matters & hæmatin. Hæmatin
is obtained by digest^{ing} the aqueous extract in alcohol, then ^{partially} evaporating the tinct to thicknes, add wat. again
and again evap. ac^{id}. Hæmatin reprecipitates in cryst. & are purified by washing in alcohol. a shining
yellowish rose col. bitterish, acid, astring^t. sol. in wat. alc & etc. Hæmat. forms bluish compounds
with various metallic oxides. & a flocculent reddish precip. with solut. of lime. Med. Prop^s: mild
astring^t not irritating used for relaxed cond^{it} of bowels after cholera infantum. also in chronic
diarrhoea.

temperat of 104° forms an s^{fl}ore s^c of pure al^m in its surf. is collect^d lixiviat^d & crystal^d by slow
evap. in leadⁿ vessels sunk in the ground. Alum from d. stone procur^d by calcinatⁿ, then expos^d to
the air 3 months, often sprinkl^d with water & made soft, then lixiviat^d, then crystal^d by evap. d. stone
is alum with hydrate of alumina this latter loses its water & consequently separates from the alum
& the mine al^m which is set free, this is the best ore. Aluminous Schist or Slate l. when compact is first
expos^d to the air 1 month, then stratif^d with ^{wood} set on fire, & burnt slow & protect^d the sulphur is convert^d in
sulph. acid. which unites with the alumina, which sulphate of alumina generates alum with the potassa
of the wood ashes. The iron is made insol. sesquioxide. The matter is lixiviat^d & the solutⁿ crystal^d into al^m by evap.
The mother wat. contⁿ 2 sals of alumina treat^d by sulph. of potassa or chloride of potassium yields beer al^m.
If the schist is easily disintegrat^d it is put in heaps, occasionally sprink^d with wat. the sulphuret of iron absorbs
oxygen & becomes sulphate of the protoxide which effloresces, part of the sul. ac. forms sulphate of iron &
part sulphate of alumina. at the end of a year the matter is lixiviat^d & the solⁿ of the 2 sulph. is concentr^d in
leadⁿ boilers, the sulph. of iron crystal. the mother wat. contain^d sulph. of alumina are drawn off, heat^d & treat^d by
sulphate of potassa in powder, then conf. & the 2. crystalizes. They are separat^d & purif^d by a 2nd solutⁿ & crystalizⁿ.
Al made by direct combst to consist. take clays as free as poss^{ble} from iron & carb. of lime. calcine to sesquioxide
the iron & render pulverizable, dissolve by heat in weak sulph. ac. add sulph. of potassa, then we have crust of 2.
Ammoniacal l. add putrid urine to a solutⁿ of sulph. of alumina (France). or sulph. of ammonia from gas
liq^{or} (B. Britain) Test to recogⁿ ammon. l. from pot. al. red it with potassa or lime & little wat. gives am. smell.
Properties. white, effloresc^t salt, octohedron crystal, sweetish astring^t
solub. in 14 times its weight of cold wat. & $\frac{3}{4}$ of its weight in boiling wat. heated above 212° alum
undergoes aqueous fusion & finally loses its wat. swells up, turns white, porous & is officinally
dried alum. at red heat it gives off oxyg. sulphurous & anhydrous sulph. acids, residue being
alumina & sulph. of potassa. calcined with porous charcoal forms an inflam^{mt} subst^{ce} call^d Homberg's
p^{ro}p^{er}ious. Roche al. orig^l from Roccha in Syria in pale rose col. fragm^{ts}. Roman l. cov^d with a rose
col. efflores. deriv^d from oxidized iron. is much esteem^d. Incompat^{ible} with alkalis & their carbonates, lime
& lime wat, magnesia & et^{er} carb. to strate of potassa & acetate of lead. Med prop^s. In ordⁿ medicinal
doses, astring^t. in large doses purgative. used as astring^t in passive hemor. colliquative sweats, diabetes
chron. dysent. dysuria, gleet & leucor^{ea} in leuc^{ea} it is somet^e combst with cubeb. dilat^d of the heart &
aortic aneurism. As a purgative in Colica pictorum, always nausea & vomiting, relief of flatulences, mitig
ates pain & opens the bowels & surely than any other med. opium & camphor sometimes conjoined.
in sol with vinegar & honey for adults, in powder by insufflatⁿ. in child^{ren} useful in anginae collection
attend^d with mor^{bund}aneous sudatⁿ. blow 3i of powder through a tube down the child's throat. useful in
angina dep^{os} on small pox, scarlatina &c. as a styptic in epistaxis, in menorrhagia soak a sponge in
a saturat^d solⁿ & introduce it into the vagina. applic^d in form of cataplasms in purulent ophthalmia & infants.

Geranium

a perennial, horizont. fleshy root, with short fibres, send up annually an herbaceous stem with several radical leaves. stem erect, round, dichotomously branched, 1 to 2 ft high. covered in common with the petioles & peduncles with reflexed hairs. leaves deeply divided into 3, 5, or 7 lobes hairy, pale green, mottled with silver spots. flowers large, purple, peduncles spring from the fork of stem & each support 2 fls - 4 or 5 on short pedicels. flowers from March to Aug. collect the root in autumn.

Root. in pieces 1 to 2 in long & $\frac{1}{2}$ to $\frac{1}{2}$ in thick, flattened, cort. of $\frac{1}{2}$ in thick, tuberculated & beset with fibres. extern. under brown, intern. reddish gray, compact, indur. not stringy, not bitter or unpleasant. Wat. & Aleoh. extract to its use. Med. props & Uses. The absence of any heat & quality renders it serviceable for children & delicate stom. used in some cases as Kino, Catechu &c. &c.

Rubus villosus et Rubus Trivialis.

The root is branching, cylindrical from an inch thick to size of a straw, ligneous & covered by a thin bark of a light brown or reddish brown col. the dried root is marked longitudinally. the Trivialis has a smaller root no longer than an inch but with transverse fissures throughout the sides of a dark ash col. - no reddish ring as both are in. bitter & strongly astringent. the woody part is insipid & inert, small roots are the best. if large ones are used the cortical is to be separated. in. is wat. & Aleoh. both extract their virtues. Med. Props. Tonic strongly astringent. decoct. is accept. to the stomach & can be given where vegetable astringents are required dose $\mathfrak{f}\text{3i}$ to $\mathfrak{f}\text{3ii}$ 3 or 4 times or more in the 24 hours.

Uva Ursi.

a low evergreen shrub found in the northern latitudes of Europe, Asia & America also in the lofty mountains of Southern Europe, prefers a barren soil. trailing stems, the young branches rise obliquely upward a few inches. leaves scattered on short petioles ovate, acute at the base, entire, rounded margin, thick. coriaceous, smooth, shining, deep green on upper side beneath paler & covered with net work of veins. flowers collected in small cymes at the ends of the branches, calyx small & of reddish color. fruit small round, depressed smooth, glossy, red berry, containing an insipid mealy pulp & cohering seeds. leaves when fresh are inod. when dry or powdered smell like hay. bitter, strongly astringent ultimately succul. powder light brown, greenish yellow. Found in abundance in N. Jersey. imported from Europe arrive adulterated with the Vaccinium Vitis Idaea which are destitute of its qualities. they have a more round leaf than the Uva. edges are also slightly toothed & the catkins are spotted instead of striped, the leaves of the Chimaphila bellata are also found but are much larger, of uniform lanceolate shape & serrate edges. Water & officinal Aleoh. extract its virtues ingred. in tannin, bitter extractive, gum

Infusum Rosae Compositum. red roses (dried petals) 355. Boiling wat. Oils, diluted sulph acid f3iii. sugar (refined) 3155. Pour the water on the roses in a glass vessel, add the acid & macerate for half an hour, lastly strain the liquor & add the sugar.

Rosa centifolia prickly stems, 3 to 6 ft high a leaf consists of 2 or 3 pairs of leaflets + odd one at the end, first stalk rough, without spines, leaflets, ovate, broad, serrate, point hairy beneath flower large pale red, stand 2 in. 60 miles beset with short bristly hairs. petals officinal, fragrant sweetish, slightly acidulous & bitterish. odour depends on a volatile oil. collect when full blown before it falls. preserve them by intermed^{te} layers of salt in close vessel or heat them with twice their weight of salt.

petals, a slightly laxative, made in form of syrup comb^d with cathartics. also used for mak^g rose water. a small portion of alcohol is often added in order to prevent fermentation.

Rose petals, lb viii. water. Congii mix them & distil a gallon, Unguentum aquae rosae, rose water oil of almonds. aā. f3ii. White wax 3i. Spermaceti 355. melt together by means of a water bath, the oil, spermi^{um} & wax, then add the rose wat. & stir until cold. this prep is call^d cold cream white soft. odorous, cooling applicat to irritated & excoriat^d surf, chapp^s lips & hands &c.

Diospyros Virginiana indigenous tree from 15 to 20 ft to 60 ft high trunk 18 to 20 in diam. straight stem, furrowed blackish bark. branches spread. leaves ovate oblong smooth. buds smooth male & female flower in diff trees pale orange col. glob. berry dark yell. contain 4 to 6 seeds. flowers in May or June, fruit ripe in middle of autumn & fall of fruit. made in cakes with bran & water, hops & yeast makes beer. the green fruit in infusion or vinous tinct. made with bruised unripe fruit 3i to f3ii of the vehicle, dose f3i for infants & f355 for adults in diarr. chron dysent. uterine haem.

bark is officinal only astring bitter, used in intermittents & gale in decat dose throat.

Tormentilla erecta. root cylindrical, inch or 2 long, thick as the finger knotty, contorted iron or blackish extern. reddish within, aromat. astring. taste contains a red coloring ppl

sol. in Aleo, insol. in wat. yields its acid virtues to bril^d water. contains tannin resin, cecrin, myricin gummy extractive, gum, extractive, lignin wat. volatile oil. pound. dose ʒr xxx to 3i.

Polygonum bistorta. root officinal cylind. flattened thick as little finger. annular wrinkles with numerous fibres. bent upon itself whence the name, solid, brittle, deep brown extern. reddish within, insid. rough taste. contains tannin, gallic ac. gum & starch. Med prop. as galic kinost.

Alumen

Officinal alum is a double salt composed of sulphate of alumina & sulphate of potassa. besides this potassa alum we find alum where the potassa is replaced by some other base ammon. or soda. The ppl alum ores are the Alum stone compos^d of subsulphate of alumina and sulfate of potassa found in great quant at Soler & Pombino in Italy. Alum schist or alum slate a natural mixt of sulphuret of iron with clay & carbonaceous matter. Alum extracted from it the conc^{ly} from the Solfaterra, Kings^m of Naples. The ground Alum originates

gallic acid & resin. Med. prop.: Tonic, astringent, alters colour of urinary secret. exerts a direct action on the kidneys & urinary passages, has been used as an antidiarrhoeic, has been serviceable in gravel, partly by direct action on kidneys, & by giving tone to the digest. organs, preventing accumulation of pps precipitating calculous matter. used in chronic nephritis espec. if accompanied by ulcerat. of kid or urinary passages. in diabetes, catarrh of the bladder incontinence of urine, fleet, leucorrhoea, menorrhagia & is beneficial in Phtisis pulmonalis.

Chimaphila.

An Evergreen plant, with a perennial, creeping, yellowish root giving rise to several erect or semi prostrate stems from 4 to 10 in high & lig. 20 in at their base, leaves wedge shaped, serrate, coriaceous, smooth, shining, s. p. green col. above, paler beneath, support^d on short stout stalks in irreg. whorls of which 2 on a stem, flowers stand on nodding peduncles, & have an agreeable odour. leaves when fresh & crushed give a green odour. when dry they give considerably, & preserve a greenish hue. pleasantly bitter & sweetish, the stems & roots unite to these qualities consid. purgative. boil w. water & alcohol. extract its virtues. constituents. Bitter extractive, tannin resin, gum, lignin & saline matters. active p. has not been isolated thought to be the Bit. Ext. Med. Prop.: diuretic, tonic & astringent employ^d by the ancients in scrophula, rheumat. & nephritic affect. useful in Dropsy especial in cases attend^d with disord^d digest & gen^l debility where it increases the diuretic powers of the stom. useful for prevent^g calculous format & disorder of the urinary passages, it has prov^d of service in obstin. ulcers & cutaneous erupt. suppos^d to be connect^d with a Strumous diathesis, in such cases it is used internally & locally as a wash. The decoct. is the pref^d. usually prefer^d.

Granati Fructus Cortex, present^d in commerce in irreg. fragm^{ts} hard, dry, brittle, yellowish or reddish brown ext^{er} paler within, inod. astringent & slightly bitter. contains tannin. the decoct. given in diarr. result^d from the weakness of the secret^d vessels. also in colliquative sweat of hectic fever or debility. used frequently as inject. in leucorrhoea, gargle in sore throat in early stages & after inflammation subside the bark of the root is used by the Arabs as a vermifuge & has cured tape-worms. Rosa Gallica, petals gather^d before the flower blows, dried, velvety appear^g. purplish red col. pleasantly astringent & bitterish taste. constituents. Tannin, gallicae. col^d matter, volatile oil, fix^d oil, albumen. soluble salt of potassa, insol. salt of lime, silica & oxide of iron yield to boil^g water. infus. pale reddish col. their colour is impaired by light. p. p. used as vehicle to tonic & astringent medicines. Confectio Rosae, red roses in powder 3iv, sugar in powder 3xxx, clarif^d honey 3vi, rose wat. 3viii rub the roses & rose wat. togeth. at boil^g heat, and gradually the sug. & hon. & beat until well mixed. used p. p. as p. p. mass.

Active ingredients, tannic acid and bitter extractive.

Medical properties, those of an astringent and mild tonic, with a tendency to act especially on the urinary organs, but without materially increasing the secretion.

Particular applications in disease.

Used in powder and decoction. Dose of the powder, from gr. xx. to ʒj., 3 or 4 times a day—of the decoction from fʒj. to fʒij. at the same intervals.

PIPSISSEWA.—CHIMAPHILA. U. S.

Leaves and stem of *Chimaphila umbellata* or wintergreen—a small, indigenous, evergreen plant, growing in the north of Europe, Asia, and America, and abundant in the United States—inhabiting the woods.

Distinguishing characters of the leaves—colour, smell, and taste—relations to water and alcohol.

Active ingredients, tannic acid and bitter extractive.

Medical properties, those of a gentle astringent and tonic, with a direction to the urinary organs, upon which it sometimes acts as a diuretic. Therapeutical applications.

Given in decoction, made by boiling two ounces in three pints to two. Dose, a small tea-spoonful 3 or 4 times a day.

An extract may be given in the dose of 20 or 30 grains four times a day.

The following vegetable astringents also spoken of.

Rind of the Pomegranate—*Granati Fructus Cortex*. U. S.

Unexpanded petals of the red rose—*Rosa Gallica*, U. S.—with its preparations—the confectio of roses (*Confectio Rosæ*, U. S.), and the compound infusion of roses (*Infusum Rosæ Compositum*, U. S.).

Incidental remarks on Rosa centifolia, or hundred leaved rose, and its distilled water, called *rose-water* (*Aqua Rosæ*, U. S.), with the *Unguentum Aquæ Rosæ*, U. S., prepared from it.

Bark and unripe fruit of the Persimmon—*Diospyrus Virginiana*.

Tormentil—root of *Tormentilla erecta*.

Bistort—root of *Polygonum Bistorta*.

2. Mineral Astringents.

ALUM.—ALUMEN. U. S.

Chemically, a sulphate of alumina and potassa.

Salts essentially similar in medical properties are formed with sulphate of alumina by ammonia and soda.

Sometimes native—more frequently prepared from ores, or by a direct combination of its constituents.

Shape of crystal—effect of exposure—colour and taste—solubility in water—effects of heat—chemical incompatibles.

Effects on the system, and therapeutical application both internally and externally.

Alum curd as a local application.

A solution containing from 15 to 20 grains to the fluidounce of water, used as a gargle.

Given internally in powder, pill, or solution.

Dose 5 to 15 grains every three or four hours, or less frequently.

Alum whey as a form for internal use.

Dried alum an escharotic.

LEAD.—PLUMBUM.

Metallie lead probably inert.

General effects of its preparations considered under the two heads—1st, of their local

• Irritant action—2d, of their peculiar specific action.

The two in some degree incompatible; as, when lead is applied so as to occasion much irritation, its absorption is impeded, and its peculiar influence on the system thus prevented.

The preparations of lead characterized by the union of astringency with a sedative power.

Description of its effects.

Poisonous action of lead. Fatal consequences may result both from the irritant action of the preparations of lead, and from its peculiar influence upon the system. The former event is more likely to ensue from large quantities taken at once—the latter from smaller quantities gradually insinuated into the system, and applied for a considerable time.

The only preparation not poisonous is probably the sulphate, which is thought to be inert from its great insolubility.

Treatment in cases of poisoning by preparations of lead. The sulphate of soda or sulphate of magnesia is the best antidote.

Preparations of lead employed—1. semivitrified oxide or litharge, 2. carbonate, 3. acetate, 4 sub-acetate.

LITHARGE.—PLUMBI OXIDUM SEMIVITREUM. *U. S.*—Preparation—aspect—colour—smell and taste—solubility—chemical nature—impurities. Not used internally. Chiefly employed in the preparation of the *lead plaster* (*Emplastrum Plumbi*, *U. S.*)

Preparation of the lead plaster. Explanation of the chemical agencies concerned. Description. Uses.

CARBONATE OF LEAD.—PLUMBI CARBONAS. *U. S.*—Also called *white lead*, formerly *cerusse*. Preparation—general aspect—sensible properties—solubility. One of the most poisonous salts of lead. Most common source of painters' colic. Seldom or never used internally. External employment. Modes of application.

ACETATE OF LEAD.—PLUMBI ACETAS. *U. S.*—Called also *sugar of lead* or *saccharum saturni*. Preparation—chemical composition—shape and appearance of crystals—effects of exposure—sensible properties—solubility in water and alcohol—appearance upon solution in common water, its cause, and mode of prevention.

Incompatible substances numerous—the most important, sulphuric, muriatic, and phosphoric acids and their soluble salts, the soluble carbonates, the alkalis, lime-water, vegetable astringents, and certain mucilages.

May be given safely in moderate doses not too long continued. In large quantities it is an irritative poison; in smaller, too long persevered in, it produces the peculiar poisonous effects of lead.

Diseases in which it is most useful, hemorrhage from the lungs and uterus, diarrhœa and dysentery. An advantage, that it is at the same time astringent and sedative. Hence given in the early stages. Usefully combined with opium. Dose, half a grain to three grains every hour, two, or three hours. Given in pill made with crumb of bread, or dissolved in water with the addition of vinegar.

Much used externally. Applied in this way, has the double effect of restraining discharges, and directly reducing inflammatory action—and hence may be used when other astringents are contraindicated. Complaints in which it is used externally. Employed in the state of solution. For application to the mucous surfaces, from 1 to 2 grains may be dissolved in a fluidounce of water, to the sound skin, $\mathfrak{z}\text{ij}$. in *Oj*.

SOLUTION OF SUBACETATE OF LEAD.—LIQUOR PLUMBI SUBACETATIS. *U. S.*—Also called *Goulard's extract of lead*. Preparation, chemical nature and sensible properties. Decomposed by whatever decomposes the acetate, and in addition by carbonic acid, gum, and starch. Effects of exposure to the air.

Employed externally to reduce inflammation. Said to have produced local palsy. Diluted before application— $\mathfrak{f}\mathfrak{z}\text{ij}$. or $\mathfrak{f}\mathfrak{z}\text{iiij}$. to a pint of water.

The cerate of subacetate of lead—Ceratum Plumbi Subacetatis, *U. S.*—commonly called *Goulard's cerate*, prepared from this solution. An excellent application to inflamed and abraded surfaces. The best remedy for blisters indisposed to heal.

Besides the preparations of lead, those of some other metals are astringent—as of *zinc* and *iron*—but they are possessed also of other properties which classify them elsewhere. Thus also with *sulphuric acid*, and with some of the preparations of *lime*.

In cases of poison by lead administeretics say *especacana* then some sol. sulfate as sul f of magnesia or sulf of soda. The preparations of mercury are antidotes to poisons by lead.

Plumbi Oxidum semivitreum. Protoc of lead cont^d 5 micryst line by incomplete fusion is larger, obtained as a product in a reaction of silver from argentiferous clouds. To prepare the acid in a test dish, place it in the floor of a reverberating furnace, the lead fuses & combines with oxygen. The oxide melting swims on the surf & is blown off by means of a bellows into a gutter leading to a recipient below there crystallizes in small scales & is thinner. This process is contin^d for 10 days, continually adding new metal for that blown off, the remaining metal being pure silver. The test is an oval slightly excavat^d dish made of a paste of bone earth & water, the sides being an elliptical band of iron, the bottom strips of sheet iron near each other. Prep. small brill^t vitrified scales, sometimes pale yellow & silvery appear^{ce} known as silver or yel. lith. again red from the presence of a part of red lead, called golden red lith. for mass it has a foliaceous structure. Tastes & is almost entirely solub in dilute nitric ac. is identical in composition with protoc of lead. attracts carb. acid from the air & consequently effervesces with dilute acids, decolorizes wines. Lo. of commerce contains iron, copper & silver & silica. a test for cop. add formicauret of potassium to a nitric sol. of lith. precip brown instead of white. heat^d with fats & oils in emulsion it wat. it saponifies them. Take of fine prod of semivitr. oxide of lead, ℥v. Olive Oil, Congi. Wat Oil. boil & stir constantly over a gentle fire until the oil & oxide form a plaster. if the orig. wat. almost disappears add additional boil^d wat. A react. takes place betw. the oil & wat. & forms a sweetish sub. glycerin & oleic & margaric acids & when animal fat is used inst^d of Oil a third called stearic. These acids unite with the oxide & form the plaster which is an oleo-margarate of lead. a more exact chem. view says. The fixed oils are compounds of the oily acids mention^d with the ox. of glycerule. When boil^d with ox. of lead & wat. the oily ac. combine with the metal oxide & form plaster & the ox. of glycerule takes an equiv. of wat. & becomes glycerin. Glycerule is carb. & hydrog. C^3H^7 with 5 equiv. of ox. forms ox. of glycerule HO^5 + 12 equiv of Wat forms glycerin $C^6H^5O^5 + Aq$. In the prep. of the plaster but reduce 1st the oil, then the oxide: sprink^d through a sieve & mix well & let the wat. be hot. Cold water causes ex plos. when finish^d should be of a firm consist. without red partic. its perfect col. being nearly white. known as Diachylon. Med. uses. applied to excoriat^d surf. slight wounds. chief use is in the prep. of other plasters.

Plumbi Carbonas. 2 modes of prep. 1st Pass a stream of carb. ac. through a sol. of subacet. (triacet.) of lead. The carb. ac. takes the excess of protoc. & precip. as carb. of lead. while a neutral acetate remains in sol. this boil^d with fresh protoc. becomes again subacet. & c. as before. The carb. is washed & dried by a gentle heat (invent. of Thénard 1802) best kind. modificat. lith. is mixed with too of acetate of lead, slightly moistened with wat. & subject^d to a stream of carb. ac. 2nd mode. Cast lead in thin sheets, roll them loosely up in cyl. 5 or 6 in^d diam. & 10 or 8 high. stand the cyl. in earthen pots contain^g ½ pint vinegar & the vineg. must not touch the lead. place the pots side by side in horizont. layers. in a rough board

building, with interstices betw. the leads. Cover the 1st layer with boards then tan or refuse stable str. then both, boards, straw &c. cover the sides also with straw, let the bed stand 6 weeks. Take it down grind the cyl. in wat. & dry the prod. this mode orig. in Holland. proper temper. of bed 113° if below 95° part of the lead escapes corrosion, if above 122° the prod. is yellow, diluted acct. acid from wood used some t^h instead of vinegar. The chem. act. analogous in both methods. In Thénard's mode. The same part. of acct. of lead unites with protox. & is set up again to carb. ac. to form carbonate. In the Dutch mode the heat generated by the tan & latil. the vineg. the acct. ac. of which with 1/4 of the air forms with the lead a subacet. it is react^d with the carb. ac. of the decompos^d straw or tan forms carb. of lead & is reduc^d to the state of a neut. acetate, this to subacet. which by combin^g with & yield^s up to protox. converts the whole to carbonate. Properties, heavy, opaque, in powder of friable lumps. fine white col. inod. nearly insip. insol. in wat. entirely sol. in dilute nitric ac. Exposed to heat turns yell. & with charcoal is reduced to the metallic state. Adulterat^d with sulph^r of baryte, lime & lead. Test nitric ac. the sulph^r remain^d undissolv^d. To detect chalk or whiting. precip. the nitric sol. of white lead by sulphuretted hydry. to remove the lead. add oxalate of ammon. to the boiled & filtered solut. we have a precip. of oxalate of lime. Med. Prop^s. Astringent & sedative. as an applicatⁿ to ulcers & inflamed & excoriat^d surf. recommend^d as an extern^l applicatⁿ in facial neuralgia used in powder or ointment. of Carb. of lead 3ii to common ointment #1 heat^d & well mixed.

Sympt. of Cllica pict. pain in the region of the navel, obst. constipnt. freq^t desire to vac. the bow^s depend^t on spasmodic contract. of intest. take partic^l the colon. 1^o relax the spasm by Opium then vac. the bowels by castor oil or sulph. of magnesia. which latter acts as a counterpoise by form^g an insol. sub. of lead. Colicual is used & if ptyalism is produced the disease yields at once.

Plumbi Acetas. Prepara^t. 2 methodes. 1^o Place thin plates of lead in shallow vessels fill^d with vinegar so that a part of the plate rises above the vin. turn the plates occasionally so as to bring diff. part. of the metallic surface in contact with the air. The met. is protoxide & dissolves in the vin. to saturat. evaporate the solut. to crystallize this process is slow but gives a perfectly neut. salt. 2^o dissolve, by aid of heat litharge or protox. of lead dissolv^d by calcinatⁿ in an excess of vin. or pour off pyroligneous ac. in leaden boilers. when the vin. is saturat^d by dissolv^d red oxid. transfer the solut. to other vessels to cool & crystallize. decant the mother wat. evaporate & a 2^d crop is obtain^d. These are gent^l yellow & are purif^d by repeat^d solⁿ & crystallizⁿ. used ppl^d in dyeing & calico print^g with alum forms acetate of alumina. used as a mordant. Plumb. acetate form^d of 12 equiv. acetic ac. 1 of protox. of lead, 3 of wat. Properties. a white salt. crystallizes in small needles long prisms & dihedrals. sm. with first sweet, then astring^t. Effloresces slowly by exposure. sol. in 4 times its weight of acct. wat. & a less quant. of hot sol. in alcohol. Solut. with com. wat. is turbid from format. of carb. of lead with the carb. ac. of wat. small portion of vin. or dilute acct. ac. renders the salt clear. decompos^d by all acids &c. combin^g with opium in diarrhoea occurring in phthisis soothes the irritabil^{ty} of stom. in yell. fever. & bilious fever. used in dothura. teretis or typhoid

few attend with ulcerat. of intest. in aneurism of the aorta. administer in gr. pills relieves salivat. Solution
used as Colly. & applied by cloth or with bread crumbs relieves superfic. inflam. for this last purpose dilute
sol. of subacet. of lead. long use produces colica picta & lead palsy characterized by great waste
of the upper extremities. sympt. of the approach of these diseases a narrow blue lead line at edge of the gums.
Liquor plumbi subacetatis. Prep. Take of. Aet. of lead $\text{℥} \text{xxvi}$. semi vitrif^d oxide of lead
in fine powd. $\text{℥} \text{ixss}$. Distill^d wat. $\text{O} \text{iv}$. boil them together in a glass or porcel. vessel half an
hour. add occasionally distill^d wat. to preserve the measure, filter through paper. keep the sol.
in air tight bottles. then comp. in t . aet. of lead = 12qu . aet. ac. + 1 of protox. of lead + 3 of
water. Litharge as only found is an impure protox. of lead. when a sol. of the former is boil^d with
the latter a large quantity of the protox. is dissol^d. & in ac. of ice is form^d which remains in sol. the
composit. of the subacet. varies with the proport. of aet. of lead & litharge used. when the lith. exceeds
the aet. of lead by $\frac{1}{2}$ or more the aet. ac. of the acetate unites with 2 addit^l. equiv. of protox. form^d
a triacet. when mixed in proport. to their equiv. numbers or 10 to 6. one addit^l. equiv. of protox.
unites with the ac. & a diacetate of lead is form^d. the prep now in use Drops. colorless. concentrat^d by
evap. it deposits on cooling, crystalline plates which are rhomboidal prisms with dihedral summits
has an alkaline react. tinging the syrup of violet green & reddish. Turmeric paper by exposure
it also the carb. ac. of the air & a precip. of carbonate of lead is form^d. - Med. props. astring^t. &
sedatives. employed external^y only. good to reduce inflam. from sprains, bruises, burns, &c. &c. appli-
ed in linen cloth removed as fast as dry. thus used dilute with O distill^d wat. to form $\text{℥} \text{iv}$ to
 $\text{℥} \text{vi}$. when applied to the skin deprived of its cuticle make it still weaker.

Linctum plumbi subacetatis. Take of. Sol^l of subac. of lead $\text{℥} \text{iii}$ ss. White Wax $\text{℥} \text{iv}$.
Hive oil $\text{℥} \text{vi}$ ss. mix the wax & previously melt^d with $\text{℥} \text{viii}$ of the oil. then remove the mixt^r
from the fire & when it begins to thicken gradual^y pour in the sol. of subac. of lead stirring with a wood
spatula until cool, lastly add camphor dissol^d in the remaining oil & mix.

CLASS II.

TONICS.

General Observations.

Medicines which produce a gentle and permanent excitement of all the vital actions, though their influence is more observable in the functions of organic life, than in those of animal life.

Differ from astringents in the more general diffusion of their action, and in the want of any especial direction to the organic contractility.

The term "permanent" in relation to their action is not strictly correct. No medicine is permanently stimulant in the healthy state. All over-excitement ultimately produces a diminution of excitability; and, as every vital action is sustained by the influence of stimuli upon excitability, a diminution of healthy action results. Tonics operate slowly in exalting the functions, and their impression is more durable than that of the diffusible stimulants; but even the excitement produced by tonics, if given in the healthy state, is followed by a corresponding depression.

Tonics, therefore, are injurious if given in the healthy state, or in diseases of excitement. They may do harm in two ways, 1. by inducing an irritation which may result in inflammation; 2. by diminishing excitability or natural healthy power. These effects more fully explained. Diseases induced by the abuse of tonics. A good rule never to give these medicines in a state of sound health, with the view of increasing strength, or of rendering the system less accessible to disease.

Tonics indicated in cases in which the vital actions are depressed below the standard of health, in other words, in cases of debility. Here they produce increase of action, and if the excitability has not been materially impaired, place the system in a condition to recover and sustain itself. But even in debility, they should not be very long continued, as their ultimate effect might be an increase of the state they are given to remedy. A general rule, that tonics are applicable in debility without permanent loss of healthy excitability. Illustrations of this rule.

The mode by which tonics invigorate the system is two-fold—1. they increase the energy of the stomach and digestive organs when enfeebled, and thereby enable more nutriment to be thrown into the system; 2. they exercise a direct influence either by means of nervous communication, or through the medium of the blood-vessels, over the whole frame, producing an elevation of all the vital actions independently of any increase in the quantity of the blood.

Tonics differ in the degree of their stimulating property, and many of them also have individual peculiarities which serve to distinguish them prominently from the other members of the class. They may be divided into four sections; 1. the purer bitters; 2. bitters somewhat peculiar in their properties; 3. aromatics; and 4. mineral tonics.

1. *Pure bitters.* Bitterness possessed by all true vegetable tonics. At one time thought to be essentially the tonic power, and to reside in some peculiar principle. But the mineral tonics are not bitter, and the property belongs to many distinct vegetable principles. But still there seems to be some connexion between bitterness and the tonic property. Perhaps the same arrangement or shape of particles which produces the bitter taste when the medicine is applied to the tongue, is calculated to produce the tonic impression when it is applied to the stomach. Different substances may have this same arrangement or shape of particles, and in some it may be associated with other properties, which may enable them to operate with great energy on the system in a manner distinct from the tonic action, and calculated to conceal it. In this view of the subject, every bitter substance may be tonic, though, from its possession of other more energetic properties, it may not display any tonic effect in its actual operation. This point further illustrated.

The pure bitters closely analogous in their effects, and used for the same purposes. Less stimulant than the others, and more purely tonic.

Effects on the system. They increase appetite—invigorate digestion—exert little influence over the circulation unless in large doses—offer little evidence of action on the nervous system—in large doses are apt to purge, and in very large doses sometimes vomit.

2. *Bitters peculiar in their properties.* Peculiar either by the inherent constitution of their bitter principle, as in Peruvian bark, or in consequence of its association with other

principles which modify its action, as in serpentaria, with a volatile oil, and in wild cherry bark, with hydrocyanic acid. In general, this division is more stimulating than the purer bitters, but not universally so.

3. *Aromatics*. Depend for their peculiarity on the presence of volatile oil. More stimulating than the bitters, they approach nearly to the diffusible stimulants, with which they might be associated without violence.

Pleasant to the taste and grateful to the stomach.

Employed to cover the taste of other medicines, to render them more acceptable to the stomach, or to increase their stimulant effect. Also used as anti-emetics and carminatives.

4. *Mineral tonics*. These have nothing in common but the tonic property, each having decided peculiarities which serve to distinguish it from the others.

1. *Pure Bitters.*

QUASSIA.

Wood of *Quassia excelsa* and *Quassia amara*.

Locality and general character of these trees.

Character of quassia as imported and as kept in the shops—weight—texture—colour—odour and taste—relations to water and alcohol—colour imparted to these menstrua.

Active ingredient, a peculiar principle called *quassin*.

Incompatibles.

Effects on the system, and medical applications.

Powder seldom used. Dose, 20 to 60 grains, 3 or 4 times a day.

Infusion most used. Proportions ℥ij. to Oj. of cold water. Dose, f℥ij. 3 or 4 times a day.

Extract, a powerful and excellent tonic. Has more tonic power in a small bulk than any other preparation of the pure bitters. Dose, 2 to 5 grains.

Tincture official. Dose, f℥j. to f℥ij.

SIMARUBA.

Bark of the root of *Simaruba officinalis*.

Essentially the same in properties as Quassia.

GOLDTHREAD.—COPTIS. U. S.

Root of *Coptis trifolia*.

Locality of this plant—general character—appearance of the root.

Closely analogous in properties to Quassia.

GENTIAN.—GENTIANA. U. S.

Root of *Gentiana lutea*, and perhaps other species.

Locality and general character of this plant.

Shape, size, and general aspect of the root—colour externally and within—texture—colour of the powder—odour and taste—relations to water and alcohol.

Medical properties and uses.

Forms of administration numerous. Powder—dose, 10 to 40 grains. Infusion, made with half an ounce to a pint of water—dose, f℥j. to f℥ij. Compound infusion official. Tincture—dose, f℥j. to f℥ij. Remarks on the danger of giving tonic tinctures. Extract—dose, 5 to 20 or 30 grains.

Several plants belonging to the family of the Gentianæ have properties analogous to those of gentian. Among these are the *lesser centaury* of Europe, *Erythræa Centaurium*, and the following.

AMERICAN CENTAURY.—SABBATIA. U. S.

Sabbatia angularis. Whole plant used.

General appearance—place of growth—season at which collected—sensible properties and relations to water and alcohol.

Medical properties and uses. Given in infusion, made with an ounce to a pint of water. Dose, f℥ij.

COLUMBO.—COLOMBA. U. S.

Root of *Cocculus palmatus*.

General character of the plant, and place of growth.

Mode of preparing the root for market, and whence imported.

Quassia.

Quassia excelsa. From Jamaica & Caribbean islands. 100 ft high at its base. 3 ft in diam. straight, smooth gray bark & tapering trunk, leaves pinnate with a naked petiole & ending point leaflets stand upon short foot stalks in opposite pairs with a single leaflet on the end. flowers small, yellowish green & droop in panicle are polygamous & pentandrous. fruit a small black drupe. Wood officinal. Quassia amara. a small branch^d tree or shrub with alternate leaves consist^d of 2 pairs of opposite primae with an odd one at the end. leaflets elliptical, point^d, sessile, smooth deep green above, pale beneath. the com. foot stalk is articulate^d edged on each side with a leafy branch. flowers hermaphrodite & decandrous, bright red terminate the branches in long racemes. fruit a 2 celled capsule contain^d globul^r seeds. from Surinam it is said to grow in some of the W. I. islands.

Properties. comes in cylindric. billets from 1 inch to 1 ft in diam & several ft long. often cov^d by a smooth whitish bark brittle & slightly adher^t as victims as the wood. the shape & struct. make it evid^t that the billets are from the branches or trunk & not from the roots. wood ^{light porous} which exposure turns it well. in water & a purely bitter taste intense & permanent. imparts its virtues to wat. & alcoh. with its bitterness & yellow col. To obtain quassin pure. evap a filter^d decoct. of quassia to $\frac{3}{4}$ height of the wood employ^d. add slak lime, let the mixt. stand for a day. occasional^y agitⁿ & filter again. pecim^s & other subst. are thus separat^d. Evap the clear liquor nearly to dryness. & exhaust the result^d mass by alcoh. of sp. gr. 0.835. This leaves behind gum com. salt. nitric &c. & dissolves quassin with com. salt & nitric & a brown organic subst. Evap. to dryness dissolve again in the least possible quant. of absolute Alcoh. add ther, the brown subst. is precip^t. filter & evap. to dryness. repeat this until the quassin remains colorless & pure. to cryst. quassin pour the Alcoh. solut with ether upon wat & wapo. spontaneously. Quassin is white opaque, unalterable in the air inod. intensely bitter almost insupport^{ble}. so in the solut. when heat^d melts like resin almost insol in wat. its solub. increased strik^{ingly} by the addit. of the salts found in quassia. slightly sol. in ether. Very sol. in Alcoh. & so in hot, & so in pure Alcoh. Quassin is neuter, acid & alkal. increase its sol. in wat. precip^{itates} by tannic &c. from its aqueous solut. which is undisturb^d by iodine, chlorine, corros. sublimate, solⁿ of iron, sugar of lead & even subacet. of lead. Chem. e. subst. Carbon, hydrogen & Oxygen.

the pale and the bitterness is peculiar. The external part more bitter & more medic^l than the intern^l probably from the longer exposure of the latter to airy moist. Odour is faint, when boil^d resembles that of the pale. The small quills resemble the pale but are disting^d from a greater bitterness. That Calisaya comes from the larger branches & trunk, is flat or slightly curv^d only destitute of epidermis & therefore yell^h within & without. thicker than the quill, more fibrous, less compact, less bitter & less medic^l power, though weaker than the proper bark of the quill, it is in equal weight more valuable being free from the epidermis. The valv^{ab}. yell^h. bark is very bitter, little astringency, fine brown^h yell. somewhat orange still brighter in powder & contains a large part of quinia & very little cinch. The salts of quinia & lime are so abund^t in it, that it is infus. precipitant^l a solutⁿ of sulphate of Soda. The partic. species of tree which yields it is unknown is produc^d most abund^t in Bolivia formerly Upper Peru, in the prov^l of La Paz & about Apolobamba on the Rio Toro before the revol^u in this country it was shipp^d from B. Ayres & the Pacific ports, at present from the latter only. it is 1st brought to Africa & from thence distrib^{ut} to the other ports. It is said that the Jesuits of La Paz anteriorly to the discov^y of the febrifuge of Acaia sent to Rome a bitter bark call^d guinaguina probably the true cinchona bark, though it went out of use was rediscover^d & made an article of commerce towards the end of the last century.

3^o Cinchona Rubra, is call^d from the distinct col of the bark & powder is import^d in chests. some pieces are partially roll^d, others entirely so, others quite flat quills from less than 2 in. diam. to 2 in. flat pieces are large & thick as if from the trunk of a tree. Cov^d by a redd^h brown or gray or whitish epiderm. which is rug^d, wrinkl^d longitud^l & in the thicker pieces penetrat^d by furrows to the proper bark, small warts are often seen on the outer surf^{ce} beneath the epid^l is a layer, dark red, brittle & compact possessing bitterness & astring^{cy}, though less than the inter. parts. These are woody & fibro^us & lively brown^h red only very distinct passing someti^ms to orange & yell^h. brown. its col. then is not suffic^t to mark the variety. bitter & astring^{cy}. odour as other good barks. Red Bark contains nearly the same amount of quinia & cinchona. It yields a turbid salmon decoct. with water. The red bark tree is unknown. it has been supposed that it is from the larger branches of the pale bark tree.

Carthagena Barks. are those com^g from the north^h Atlantic ports of S. America, & are characterised by a soft, whitish, or ell. white, micaceous epid^l easily scrap^d by the nail, which though remov^d almost always leaves traces suffic^t to indicate its charact. They contⁿ cinch & quin. in less proportion than the Pacif^c barks. They are the White bk^l of the Spanish writers & are not officinal. are kept & sold for tooth powder. call^d common bk. They are 1^o Yell. Car. Bk. The most abund^t of the non-official bk^l comes in quills & more commonly in flat pieces, is disting^d from is epid^l as above. & by the brown^h yell^h of the prop. bk^l is a hard yell^h bark. quill^s & flat the flat appear to have been warp^d in dry^g being often curl^d longit^l backw^d & someti^ms transver^s or spirat^l. as found in our market comes in small, irreg^l square or oblong flatt^l warp^d pieces from 1 to 3 or 4 in. long & from 1 to 3 lines thick. mix^d with quills or fragm^{ts}

Medical Prop. has in the 1st degree all the prop. of simple bitters, is purely tonic, particularly adapted to dyspepsia from debility of stomach & that weakened state of the digestive organs sometimes succeeds an acute disease given in the remission of certain fevers. Demand^d tonics used in brewery to impart bitterness. Named after Quassia a negro of Surinam who obtained success in the treatment of the malignant fevers of that country by a secret remedy. Mr. Rolander a Swede purchased the secret & brought a specimen to Stockholm in 1756.

Tinctura Quassiae. rasp^d Quassia 5ii. Dilut^d Aleoh. Oij. macerate 14 days, express & filter through paper prepared also by moist^d thoroughly Quassia with dilut^d Aleoh. let stand 48 hours, transfer it to an apparatus for displacement pouring gradually Diluted Aleo. until Oij of filtered liquor is obtained.
Infusum Quassiae. rasp^d Quassia 5ii. Cold wat. Oij. macerate 12 hours & strain. Extractum Quassiae rasp^d Quassia 5ii. wat. Q. S. mix the quass. with Oij water. let stand 24 hours. introduct it into a displacement apparatus. pour wat. grad^{ly} upon it until the liquid passes slightly impregnated with the prop. of the Q. heat the filt^d liquid to boil^d print, strain & evaporate to the proper consistence.

Simarubae

Found in the W. I. & Guyana, the bark of the root comes in long pieces, some inches in breadth, fold^d lengthwise, light, flexible, tenacious, very fibrous. Externally light brownish yell. rough, warty, marked with transverse ridges, intern^{ly} pale yell. mod. bitter. imparts its virt. to wat & alcoho. Decoct. becomes turbid on cooling. Its consist. are a bitter ppl. identical with quassia in a resinous matter, a volatile oil, odour of benzoin, malic acid, gallic ac. an ammoniacal salt, malate & oxalate of lime some mineral salts. (Rinde of iron silica, ulmin & lignin. used as quassia. The best prep. is the Infusum Simarubae. dose from ʒi to ʒi. seldom used in the U. S.

Coptis.

Inhabits the northern part of America & Asia, is found in Greenland & Iceland also in the dark shady swamps of northern latitudes & Alpine regions, in Canada & the hilly districts of N. England. Blossoms in May. An evergreen resembling the strawberry in size and aspect. perennial creep^d root which from its slenderness & bright yell. col. has caused the name Goldthread. Dried Goldthread comes in matted masses the leaves & stems often intermingled with the long threadlike orange yell. roots. mod. bitter without aroma or astring^{cy} imparts its virtues to wat & especial^{ly} to Aleoh. with which it forms a bright yell. tinct. its virtue depends on a bitter & astring^{ent} extractive which is precip. by nitrate of silver & acetate of lead. contains no resin, gum or tannin. used as Quassia. Dose of mod. from gr. x to gr. xxx of a tinct. prepared by macerate 1 an 3 of the root in Oij of diluted Aleoh. ʒ ʒi.

Gentiana.

Grows in the Apennines, Alpes, Pyrenees & other mountainous regions of Europe. Yell. gent. is remarkable among this genus for its beauty & size. from its thick, long, branch^d perennial root an erect, round stem rises 3 or 4 ft high bearing opposite acute oval bright green leaves a little glaucous

2^d Lima or Huancabark. 1st notice 1779 in central Peru. The tree in it begun 1785 dimensions as the Loxa. Some small quills are spiral, at the edge of the complete quills, a sharp oblique cut of a knife is observable. Epidermis is a recent external surf longit^l wrinkles, amount² to furrows in the large pieces, penetrat² through the outer coating, as incomplete transverse fissures. The outer coat of epidermis is often rub^l off entirely in spots, & expose the proper bark. The col. external is light gray or milk white with bluish gray or darkish spots intermingl^d. When the outer coat is want² the surf is gray^l fawn or red gray & in the thick pieces dark cinnamon. Inner surf ± uneven fibrous or splintery. Special in the large pieces where we observe adhering yellowish white splinters of wood. The only ardu^l brown, incl² to red with occasional² a purplish tinge. Transverse & tract smooth external^l fib^l or splintery interiorly. Longitud^l tract uneven, not splintery exhibits here & there minute shin^d spots. Inner layers of the bark are soft & friable. Col of powder full cinnamon brown. Inner bark like that of clay. Diff^r in this respect from all the other barks at first acidulous, astring^t & aromatic, then bitter & adhesive. Best pieces are of middling size. Von Statten got from the best spec. 2, 7 3/4 Cinchona & no quina, produce of 2. Microanthus.

3^d Lacn Bark, so call^d from Lacn or Dracomons a prov. near Loxa, of size of the Loxa is always in quills are gully, curv^d longit^l or bent & spiral. Outer coat of the rub^l off leaving a smooth and soft surf. When the epidermis is perfect it presents small irreg^r trans^r fissures with occasional faint longit^l fissures & many wrinkles. a few warts, but no deep furrows. Col. from light or ash^y gray to light yell^l with blackish & brownish spots. is still more well depriv^d of the epidermis as the bark is yellowish or straw col. The outer layers are soft, spongy & can be scratch^d by the nail. Interior somewhat smooth, again uneven & splintery. dull cin. col. tract as Lima bark exhibits neither in large or small pieces a resinous charact^r. odor sweetish, compar² to tan taste, acidulous, slightly astring^t bitter not disagreeable. Col of powd. cin^l brown very deficient in alkali^s supposed by some to be the same tree as the Loxa but diseas^d or growing in unfavorable situat^l. is of no value.

4^d Huamillies Bark, from the prov. of Huamillies cont. 0, 67 3/4 cinch. and 0, 25 quinea, scarcely known^{us}.

2^d Cinchona Flaves, call^d in commerce Calisaya from Colisalla from colia a remedy & salla a rocky country. Druggists divid^d it into the quilled & flat, both come from a larger tree than that that yield^d the pale. Quilled Calisaya, from 3 or 4 inc long to 1 1/2 ft. From 1/4 inch to 2 or 3 inches diameter not equit^l variable thickness. Epidermis brownish diversif^d or conceal^d by whit^l or yell^l lichens. Mark^d by longit^l wrinkles & trans^r fissures often surround^d the quill in the larger kinds in these it is also thick & rough, often separ^d & only easily separable from the proper bark. is often compos^d of several layers separ^d from each other by a reddish brown numb like velvet. The epidermis has none of the virtues of the bark & ought to be removed before the bark is pur^d. The demand bark is from 1 to 2 lines thick, of fibrous text. when broken presents shin^d points which appear under the microscope yell^l & transpar^t when freed from a salmon col^d powd. surround^d them. They separate when the bark is pur^d in spiculae, produce like cowhage a disagr^l itching & irritat^l. col of the bark brownish yell^l with a tinge of orange, less astring^t but more bitter than

The leaves which spring from the root are narrowed at their base in the form of a petiole. flowers large & beaut.
placed in whorls at the axils of the upper leaves. Properties. found of various dimension & shape: gnl^{ly}
of consid. length, sometime of longitud. slices, somet^h the root cut transversely, twisted, wrinkled
externally, somet^h ~~wrinkled~~ with close transverse rings of grayish brown outside, yell-wish or
reddish within & of soft spongy text. odour feeble but peculiar, slightly sweetish, intensely
bitter, not nauseous. powder yellowish. yields its virtues to Wat & Aleoh. mace rated in cold wat
it undergoes vinous fermentat. owing to the presence of its saccharine ppl. from the ferment^l
infus & spirit^l lig. is obtain by distillat. though bitter & of bad odour is much liked by the Swiss & Tyrol
ese. Med prop^s. Tonic. prop. of simple bitters excites appetite, invigorates the powers of digest. incre-
ases a little the temperat. of the body & the force of the circulat. & acts as a gnl corroborant of the
system. in large doses, irritates the bowels, causes nausea & vomiting. of great antiquity. named from
Gent^l: King of Phrygia. found in many of the complex prep. of the anc^t Greek & Arabians. enters
in many modern stomatic combinat. used in all diseases depend^t on debility of digest organs. requiring
a gnl tonic impress. has proved useful in Dyspepsia, post. amenorrh. hysteria, profusa, intermitten.
diarrh. & worms. the state of the stomach & system gnlly must be considered not the name of the
disease. for use Extern^l in malign^t & slough^d ulcers. dose of powder grx to grxli. Infusum
Gentianae in praitum. Bruis^d Gentian 3ss. dried Seville orange peel Bruis^d, Bruis^d Coriander 2ā.
ʒi. Dilut^d Aleoh. ʒiv. cold wat. ʒ 3xii. 1st pour on the Aleo. 3 hours after. the nat. mace rate 12
hours & strain. the physici an should avoid if possible the use of tonic tinct. inasmuch as their con-
stant use has not infrequently brought on habits of extreme intemperance.

Sabbatia.

an annual or biennial herbaceous plant, fibrous root erect, smooth, & sided & branching at the angles, in soil
below sent^d opposite axillary branches above & rising for 2 ft. leaves vary much in size, are ovate, & entire acute
nerv^s smooth, opposite & sessile, subrac^d at the circumf of the stem at their base. flowers numerous forming
at the end of the branches a large terminal corymb. flowers in July & August, recumbles closely in for ops. as
well as appear in the European centaury. found in the Mid. & South^h states, in low meadows woods & neglect^d fields
& in the uplands during the rainy season must be collect^d when in flower. Strongly purely bitter. Wat
& Aleoh. extract its virtues. Tonic. used as a prophylactic & in intermit^t ^{partial^l in} fevers in the intervals betw.
paroxysms when the remission calls for tonic & are not decid^d enough to demand Peruvian bark. also in slow conva-
lescence promotes appetite & invigorates the digest. funct. repeat the dose of infusion every hour or 2 during the
remission & less often in chronic affect. dose of powder from grxxx to ʒi. Decoct. extract & tinct^l
are efficient prep.

Colomba.

A clim^b plant with perennial root consist^d of several fasciculat^d fusiform, unro^d & descind^d Rube^s thick as an infant^s

found 6° south of the prov. of Loja in the mount. about 11000 m. Lima became the entrepot for these
barks & from there the name of Lima barks. soon after they were found at S. Martha in the north
& far south in La Paz & Cochabamba now Bolivia. These 2 last are the Calisaya bark & were sent to the ports
in the Pacific & partly to Guayaquil. Owing to all these desc. the supply was so great & the varieties so numerous
that it was impossible to make a proper classification. The restriction upon commerce by direct & indirect
channels, the contrivances to cheat the government & caused not only mixt. of good & bad barks but
also the products of trees bear no account to kind. But supplies come from the coast & by land
or indirectly by the Spaniards were very inferior. Since the opening of the Pacific ports, our vessels bring
the best kinds from Isquimbo, Lospalos, Arica, Callao, San Lorenzo, waste from Valparaiso to Guayaquil.
The bark hunters are call'd cascañeros & to be capable require experience & judgment. he must not
only know the trees, but the season, the proper age at which to be corticated, the marks indicative of the
efficiency or ineffic. of any partic. product. Operations begin with the dry season in May & end the tree
is decorticated while standing a better plan is to cut it down & then decorticate the stumps & sprout
new. Pöppig says the bark is taken 3 or 4 days after the tree is felled is then quickly dried by the sun
the heat of which rolls it into quills it is then packed without much resort to the packages are
call'd serenos, usually cov'd with thick stiff white lime with a coarse cloth woven of some kind
of grass. These forests belong to none are opened to all consequently much destruction & waste
ensues. So much so that government forbade its export. for 5 years back from 1838. owing to the
revolutionary state of Bolivia the law was never enforced but there is little danger of the extinct.
of the plant. A botanical classification though much preferable is not pract. impossible a mercant. classific. arose
from the place of growth & exportat. the best is however that of the colour. 2 official kinds are distinguish'd
1. Cinchona Pallida so call'd from the color of the powder & gray barks by the French from the color of the epidermis
which is pinkish it is cinchonina with very little quinina. the bark is thick colored rose or brown in wet & rose
from the impress that they are the same as those formerly select'd for the royal farm of Spain. The Lima
or Huancabark from the place of its export. & growth the French Huancabarks hardly know with
us as distinct species. Loxa Bark is in cylindric tubes from 6 to 15 in long from 2 lines to one inch diam. from 2
line to 2 lines thick. outer surf. rough, transverse fissures divided into rings with elevat'd edges. this is obvious in large
than in small quills. The larger ones being somewhat warty. epidermis dark gray or almost black again ash col. gain
faint & sometimes light gray from the presence of a coat of whitish lichens. inner surf. smooth, cinnamon col
with occasional tinge. In small quills quite smooth in the large filices. The bark is of firm consist. when cut
transversely exhibits a resinous haract. of wood of that pers. in damp wood taste acidulous, bitter & astringent
powd. dull cinnamon col. contain 3.49 percent cinchonina & 0.05 quinina. in the thicker pieces 1.0% cinchon.
& 0.03 quinina. The bark yields from 3155 to 3111 sulphate of cinch. disting'd by the English pick'd crown b.
2: silvery c. b. 3: leopard c. b. Loxa becomes supply from the C. Andanina was the 1st variety br. sent to Europe.

arm. one or 2 stems come from the same root are twining, simple in the male plant. branch in the female round hairy & about as thick as the little wing. leaves stand on round gland^{ed} hairy foot stalks are alternate distant cordate with 3, 5 or 7 entire acuminate wavy slightly hairy lobes & as many nerves each & into one of the lobes flowers small & inconspicuous, native of Mayaguez where it grows wild in the thick forest never cultivated. the root is dug in March when dry weather prevails from the base of the root numerous fibrous offsets proceed less fibrous & woody than the parent stock, these offsets are separated, cut into 4 or 5 slices & dried in the shade, the old root is sweet & is taken to India thence over the world. It was formerly thought to have derived its name from Calumbó the Portuguese intercept at Ceylon but more probably from Calumbé the Mayaguez name for the root.

Carth. Bks. Continued of quills. the 1st from the trunk the latter from the smaller branches. The quills are gaily more covered by the micaceous epiderm than the flat pieces, from which it is often removed. The inner surf of the flat is somewhat smooth, but often rough & splintery as if torn from the trunk forcibly. col of the proper bark is a pale dull brown^{ish} yell. darker in parcels long kept, the surf appears often as if rubbed over with powder. Test. firm & compact. fract abrupt not smooth or splintery, bitter & nauseous supposed to come from *C. cordifolia*. 2^d variety Fibrous yell. Carth. Bk. comes in flat or slightly rolled pieces, from $\frac{1}{2}$ inch to 2 in. broad from 4 to 6 or 9 inch^{es} long, brighter than the 1st yell. is less compact, very fibrous which causes it to exhibit long splinters when broken transversely & to hang together by connect^{ed} fibres when broken length^{wise}. epiderm is seldom entire & has the same appearance as in the 1st yell. the outer surf nearly smooth, here & there faint irregular transv. fissures & long^{itudinal} furrows. col. varies from dirty white gray to yell^{ish} deprived of epiderm is nearly pure ochre yell. inner surf even somewhat irregular & splintery allways harsh to the fingers from the splinters remaining in the skin. col. ochre yell. & powdery. No traces of a resinous appearance are found in the fract. The powder of yell. Carth. Bk. is of a yell^{ish} cin^{dr} col. less red than laticis is more easily bitter & the test of bicarbonate of soda which throws down no precip with its infus. will prevent any deact.

2^d Red Carth. Bk. never comes in our markets except as an adulterant of the offic. red. examined by Bellefleur & Caventou it gave neither quinia or cinch. 3^d Orange Carth. Bk. is the orange cinch. of Santa Fe. is no longer an object of commerce bark is of orange col. externally fibrous, spongy under the teeth nearly tasteless & has no medicinal virtue. 4th Brown Carth. Bk. not found in our markets. Pereira thinks it a variety of the hard yell. Bk. it is rough, hard, heavy with white & smooth epiderm $\frac{1}{2}$ inch thick fresh cut of orange brown col. internally chocolate col. taste of pale Bk. more disagreeable. False Barks. 1st Caribacian Bk from the *Crostemma Caribacian*. 2^d 5th Lucia. 3^d Pitaya from the Mount of Pitaya in Columbia this last only is known in this country. is in quills singly or doubly rolled from 8 to 10 inches to 2 ft or more long & $\frac{1}{4}$ to 1 inch or more diam. exteri^{or} dull gray^{ish} olive col. with large oval or irreg. spots of lighter col. even white & deprived of a layer of epiderm had fallen off within their limits is consequent^{ly} call^{ed} bicolorata internally deep brown. a fresh fract. red^d or orange. odorless taste bitter not unlike inferior kinds of cinch. has been much used in Italy.

Properties. The root comes in flat circular or oval pieces from 8 to 1 inch thick the top from 1 to 2 inches diameter. In
with three or four cylindrical pieces 1 or 2 inches long. The cortical part is thick, bright yell. slightly greenish inter-
laced with a brownish wrinkled epidermis. The internal medullary part is light, spongy, yellowish, & shrunk
frequently marked with concentric circles & radial lines. Best pieces are bright & of col. in water up to 2 or 3 inches
of appear. freed from worm holes. Slightly astringent. The cortical more bitter than the central part, which is
somewhat unaltered. Root brittle, easily pulv. powder can change becomes browner by age & deepens with moist-
& undergoes by it decaying a part at a time. The root yields its virtues to boil^d wat. & to Alcoh. precipitates
are produced with the infusⁿ & tinct. but the infusⁿ of gall. seeds & a sect. of lead, errors. Chloride of zinc & lime
wat. but the bitter ppt. is small. Phyt. uses reas^d Med. props. Among the most useful mild tonics, no astring^t
little stimulat^t powerfully accept^t to the stomach, good in simple dyspepsia, debility, in convul. from acute diarr^h
super^{fl} in suppurated cutis of aliment. canal, prescrib^d consequently in declin^g stages of remitt^{ent} fever & dent. diarr. chol
morbus, & chol. infantum. inapp^{ro}pt^o tonic in hectic fever & phthisis & kind^d effects, in vomiting in com^{mo} & in
inflammation in the sickness of pregn^t & on every effect, ^{fluently} ~~and~~ ^{permanence} in disposition to accumulatⁿ of flatus
in the bowels. is an infusⁿ of 3ss. of Columbo, Ginger 3ss. Seneca 3i. boil^d wat. Oi. a wine glass 3 times
a day. It introduced into Europe 1685. Adulterations. Barbary Columbo epidermis of gray fawn col. mark^d
with close paral. circ. striae, medullary part orange yell. with a deeper col^d circle, smell of weak gutt. heavily
bitter, slightly so castoreum, powder yell. fawn next of greenish, entirely without starch which
constitutes $\frac{1}{3}$ of Columbo. For use is therefore in excellent treat.

Cinchona.

Though said to have been known to the ancients in 1731 that the plant was made known to moderns by a
French academician as Andamira. It was thought for a long time that only 1 species exist^d. It has been since found
that they are very numerous, at least 46 species have claim^d to be 3 true genus. Many botanists have made personal
observat. since 1760. specimens gather^d by Joseph de Ruiz. 1763 about 1000 still exist in the cabinets of
Spain. Describ^d in 1772. Describ^d trees in New Granada & afterwards with his pupils were made further descr.
Ruiz & Pavon 1777 descr. several new kinds in Peru. also Humboldt & Bonpland 1792 & lastly Pissig who
travel^d in Peru in 1832 & publish^d his journey in 1833. It has been stat^d that genuine cinchona is confined to 5th
America it ranges there however a space of 370 miles from lat^{it} in the former vice royalty of Buenos Ayres
to Santa Martha in the north seldom lower than 4000 ft from a bay with the sea. Humboldt states that
all cinch^a with hairs & woolly divisions cure agues. For a century after Peruv. bark came into use it was
procured almost wholly from Loxea, it was shipped ppt^{ly} at the port of Payta to Spain then throughout Europe. it was not
supposed to exist beyond the kingdom of Guato till 1753 when a gentleman of Loxea on a journey to Santa Fe de
Bogota & his cov^{er} it thence Guato into New Granada 22 leagues north of the equat. at about 6200 ft above the sea
this town & a visit in the archives of the vice royalty till Mexico in 1772 descr^d it near S. Fe de Bogota
from then began an active commerce from Carthagen & Santa Martha. In 1776 new localities were

Shape, size, general aspect, and consistence of the pieces—difference between the cortical and central portion—colour—odour—taste—colour of the powder—relations to water and alcohol.

Active ingredient, a peculiar principle called *colombin*. Besides this, a large proportion of starch, according to Planche 33 per cent.—also mucilage, and a little volatile oil.

Nothing incompatible chemically, which is likely to be associated with it in prescription, unless, perhaps, iodine.

Medical properties and uses.

Frequently combined with other tonics, purgatives, aromatics, and antacids.

Used in powder, infusion, and tincture. Dose of the powder, 10 to 30 grains—of the infusion made in the proportion of $\bar{3}$ ss. to Oj., from $\bar{f}\bar{3}$ j. to $\bar{f}\bar{3}$ ij.—of the tincture, $\bar{f}\bar{3}$ j. to $\bar{f}\bar{3}$ ss. The hot infusion soon undergoes spontaneous change from the presence of starch. Numerous other bitters analogous to those mentioned; but at present little used, and not wanted.

2. *Bitters of peculiar or modified properties.*

These may be subdivided into 1. those having a peculiar alkaline principle, as Peruvian bark, 2. those in which the bitter principle is modified by combination with a sedative principle, as wild-cherry bark, and 3. those in which it is associated with a stimulant principle, usually a volatile oil, as serpentaria.

PERUVIAN BARK.—CINCHONA. U. S.

Bark of different species of *Cinchona*—natives of the Andes—and extending from La Paz in Bolivia, to Santa Martha on the North Coast.

Not certainly known from what particular species the different varieties of bark are derived.

Three official varieties; 1. *pale bark* (*cinchona pallida*), 2. *yellow-bark* (*cinchona flava*), and 3. *red bark* (*cinchona rubra*).

All the varieties strictly official are brought from the Pacific Coast of South America. Those brought from the northern ports are considered inferior, and thrown together under the name of *Carthagena barks*.

1. *Pale bark*.—*Cinchona Pallida*, U. S.—Embraces the commercial varieties called Loxa and Lima barks. Named from the colour of the powder. Called *gray bark* by the French.

Description of pale bark—colour of the powder—sensible properties.

2. *Yellow bark*.—*Cinchona Flava*, U. S.—This is the variety denominated in commerce *Callisaya bark*. Wholly different from the common yellow, which is a variety of *Carthagena bark*, and is not officially recognised. Called by the French writers *royal yellow bark*.

Description of the yellow or Callisaya bark. Two varieties, the *quilled* and the *flat*—differences between them—colour of the powder—sensible properties of yellow bark.

3. *Red bark*.—*Cinchona Rubra*, U. S.—Quilled and flat—description—colour of the powder—sensible properties.

Of these varieties the most efficient are the yellow and red—the least disagreeable, the pale.

Carthagena barks. Varieties—signs by which distinguished.

Active ingredients of bark, two alkaline principles called *quinia* and *cinchonina*, combined with kinic acid. Other principles of bark.

Difference in composition between the pale, yellow, and red barks.

Quinia. Description of its properties—outline of the mode of preparing it—sulphate of quinia one of the official preparations of bark.

Cinchonina. Differences between it and quinia.

Both alkalies form salts of difficult solubility with tartaric, oxalic, and gallic acids.

Incompatibles. All substances which occasion precipitates with bark are not incompatible in prescription, as the substance precipitated is frequently not the active principle. The alkalies and alkaline earths and astringent infusions, may be considered as incompatible—the former precipitating the alkaline principles in a separate state, the latter forming with them insoluble compounds.

Effects of bark on the system. At the same time that it is tonic, it exerts an influence peculiar to itself, and this influence is found to be incompatible with the existence of periodical or intermittent diseases. There are, therefore, two different and highly important properties of bark, therapeutically considered, viz. the anti-intermittent and tonic. Explanations on this point.

Diseases to which bark is applicable as anti-intermittent, and speculations on its mode of action. Therapeutical applications as a tonic.

Bark most powerful in substance. Disadvantages of this mode of administration. Only given in cases where a powerful anti-intermittent operation is required. Power increased by combination with opium and aromatics. Dose, $\bar{3}$ j. repeated so frequently that from $\bar{3}$ j. to $\bar{3}$ ij. may be taken between the paroxysms. Best mode of administering bark in sub-

stance. Objections to wine as the vehicle. Sometimes used in quilted jackets. If it purge, combine with opium, if it constipate, with rhubarb.

Infusion. $\mathfrak{z}\text{j.}$ to Oj. of boiling water. *macerate 2 hours in a covered vessel & strain or by percolation.*

Decoction. $\mathfrak{z}\text{j.}$ to Oj. —boil ten minutes in a covered vessel. Objections to both these forms. Dose, $\mathfrak{f}\mathfrak{z}\text{ij.}$ 3 or 4 times a day, or in acute cases every hour or two.

Compound infusion. A good form— $\mathfrak{z}\text{j.}$ to Oj. , with $\mathfrak{f}\mathfrak{z}\text{j.}$ of aromatic sulphuric acid.

Advantages. Dose $\mathfrak{f}\mathfrak{z}\text{ij.}$ *macerate 12 hours occasionally shaking & strain. It is stronger than infusion.*

Tincture. Very strong. Dose, $\mathfrak{f}\mathfrak{z}\text{j.}$ to $\mathfrak{f}\mathfrak{z}\text{ss.}$ *in hot water. 3vi. Dilute Alech. Oij. macerate 12 hours & filter.*

Compound tincture. Ingredients. Advantages. Dose, $\mathfrak{f}\mathfrak{z}\text{j.}$ to $\mathfrak{f}\mathfrak{z}\text{ss.}$

Extract. Mode of preparation. Dose, 10 to 30 grains.

Sulphate of quinia.—*Quinia Sulphas, U. S.*—Value—mode of preparation—character of crystals—composition—effects of exposure—taste—solubility in water, alcohol, and dilute acids.

Comparative powers with those of bark itself. In what respects preferable.

Ten to 14 grains equivalent to $\mathfrak{z}\text{j.}$ of good bark.

Dose, as anti-intermittent, 1 grain every hour or two. In intermittent diseases, 12 to 18 grains in the interval between the paroxysms. In enema, 12 grains, with half a grain of opium, every 6 hours. Endermic application. As a mere tonic, one quarter to half a grain, 3 or 4 times a day.

Given in pill or solution. Preparation of these.

Adulterations of sulphate of quinia, and mode of detecting them.

Sulphate of cinchonia. Character as a remedy. Dose and mode of administration the same as those of sulphate of quinia.

Various substitutes for Peruvian bark have been proposed, among which may be mentioned the *Caribbean bark*, the barks of the *Swietenia febrifuga* and *S. Mahogani*, the *horses-chesnut bark*, that of different species of *willow*, and the bark of the common *dogwood* of this country. None used to any extent at present. The dogwood, as a native of this country, merits a brief notice.

DOGWOOD BARK.—CORNUS FLORIDA. U. S.

Bark of *Cornus Florida*. General character of the tree. Bark from the stem and root. The latter preferred.

Aspect of the bark—colour of the powder—odour—taste—relations to water.

Used in powder or decoction. Dose and mode of treatment similar to those of Peruvian bark.

WILD-CHERRY BARK.—PRUNUS VIRGINIANA. U. S.

Bark of *Prunus Virginiana*, an indigenous tree. General character of the tree. The fruit and its uses.

Bark obtained from the stem, branches, and root.

Appearance of the bark—colour—colour of the powder—odour—taste—relations to water and alcohol—colour of the infusion and tincture—effects of heat upon them.

Active principle hydrocyanic acid, with tannic acid and perhaps bitter extractive.

Taken internally, it is tonic to the digestive organs, and at the same time sedative in its direct general influence. Applicable to diseases in which debility co-exists with irritation of the circulatory and nervous systems. Diseases in which it is employed.

Used in powder and cold infusion, generally in the latter form. Dose of the powder $\mathfrak{z}\text{ss.}$ to $\mathfrak{z}\text{j.}$, of the infusion $\mathfrak{f}\mathfrak{z}\text{ij.}$, 3 or 4 times a day, or more frequently.

CHAMOMILE.—ANTHEMIS. U. S.

Flowers of *Anthemis nobilis*.

Character of the plant, and place of growth.

All parts of the plant are active, but the flowers are most agreeable in flavour, and exclusively officinal. Imported from Europe.

Character of the flowers—difference between the single and double—sensible properties—relations to water and alcohol.

Active principles, bitter extractive and volatile oil.

Effects on the system, and medical uses.

As a tonic, best employed in cold infusion. Dose, $\mathfrak{f}\mathfrak{z}\text{ij.}$ several times a day. As adjuvant to emetics, in hot infusion. Large draughts.

The decoction and extract objectionable preparations. The powder may be used in the dose of $\mathfrak{z}\text{ss.}$ to $\mathfrak{z}\text{j.}$

THOROUGHWORT.—EUPATORIUM. U. S.

Eupatorium perfoliatum, often called *boneset*. An indigenous perennial herb. General character of the plant. Whole herbaceous part used.

Sensible properties, and relations to water and alcohol.

Composition of Bar K. 1 Pale Bk of Socca. cont.² a fatty matter, a red colour³ mat⁴ slightly soluble identical with the cinchonic red of Reuss, a yell. colour⁵ mat⁶ sol in wat. & alc⁷ & precip⁸ by the subacet⁹ of lead. Tannin, gum, starch, lignin, kinat¹⁰ of lime & kinat¹¹ of cinch. with a very small port¹² of kinat¹³ of quinia.

2^d Bell Bk is a Bk. cont.¹⁴ the fatty mat¹⁵, the cinch¹⁶ red, the yell. col¹⁷ mat¹⁸, tannin, starch, lignin, kinat¹⁹ of lime & acidulous kinat²⁰ of quinia with a comparatively small port²¹ of kinat²² of cinchonia.

Winkler is said to have discov²³ with a peculiar bitter ppl²⁴ which he proposed to call kinovic bitter, insol in wat. sol in Aleo. & ether has no alkaline or acid prop²⁵ & contains no nitrogen.

3^d Red Bk. cont²⁶ the fatty mat²⁷, a large quant²⁸ of cinch²⁹ red. The yell colour³⁰ mat³¹, tannin, starch, lignin, kinat³² of lime & a large prop³³ both of acidulous kinat³⁴ of quinia & of acidulous kinat³⁵ of cinchonia. Carthag³⁶ Bk. contains the same ing³⁷ red³⁸ as the red Bk. but in diff³⁹ prop⁴⁰. has less alkaline mat⁴¹ which it yields less readily to wat. from the abundance of insol. cinch⁴² red contained in it & which either involves the salts of quinia & cinch. so as to prevent a full contact of wat. or retains these alkalies in a species of combinat⁴³. The fatty mat⁴⁴ is green⁴⁵ of pale bk. orange yell⁴⁶ of the yell⁴⁷ bk. insol in wat. sol in boil⁴⁸ alc⁴⁹ which deposits a port⁵⁰ on cool⁵¹ very sol in sulphuric ether & capable of form⁵² soaps with alkalies. The col. comes from some extraneous mat⁵³ connect⁵⁴ with it. The cinch⁵⁵ red, is red⁵⁶ brown, insipid, insol. very sol. in alc⁵⁷ when hot. insol. in ether & wat. though boil⁵⁸ wat. dissolves a little. Acids promote its sol⁵⁹ in wat. precip⁶⁰ tartarum et. but not gelatin. If treat⁶¹ with a cold sol⁶² of potash or soda or by ammonia lime or baryta with heat & precip⁶³ from such sol⁶⁴ by an acid it acquires the prop⁶⁵ of form⁶⁶ an insol. comp⁶⁷ with gelatin & is converted into a species of tannin. It is precip⁶⁸ by subacet⁶⁹ of lead. mat⁷⁰ abund⁷¹ in red Bk. least so in Pale. Yell. Col⁷² Mat⁷³ sol in wat. ale. & ether, has little taste, precip⁷⁴ neither gelat⁷⁵ nor tart⁷⁶ et. & is precip⁷⁷ by subacet⁷⁸ of lead. The Tannic acid, tannin, or sol. red col⁷⁹ mat⁸⁰, possesses all the charact⁸¹ prop⁸² of the proximate vegetable ppl⁸³ associat⁸⁴ under this name. It must, however, differ from the tannic ac. of galls which could not exist in aqueous sol⁸⁵ contain⁸⁶ cinch. without form⁸⁷ an insol. tannate with that base. Cinchonia is a white crystalline subst⁸⁸ nearly insol. in cold wat. sol. in 2500 parts boil⁸⁹ wat. slight⁹⁰ sol. in the fix⁹¹ & volat⁹² oils very sol. in boil⁹³ alc⁹⁴ which upon cool⁹⁵ deposits a port⁹⁶ in the cryst⁹⁷ states bitter though not very perceptible at first from its insol⁹⁸ in alc⁹⁹ ether¹⁰⁰ & oleag¹⁰¹ sol¹⁰² are very bitter. by heat it is simultaneously melt¹⁰³ & dec¹⁰⁴ pos¹⁰⁵ is a strong alkali, neutraliz¹⁰⁶ the strongest acid & forming saline comp¹⁰⁷ with them. of the salts the sulf¹⁰⁸, nitrate, muriate, phos¹⁰⁹ & acet¹¹⁰ are sol. in wat. the neutral tartrate oxalate & gallate are insol. in cold wat. & sol. in hot wat. alc¹¹¹ or an excess of acid. Prep¹¹² subnit¹¹³ pow¹¹⁴ pale bk to very dilut¹¹⁵ sulph¹¹⁶ or mur. ac. precip¹¹⁷ the sol. by an ex¹¹⁸ of lime, collect the precip¹¹⁹ on a filter wash with water & treat it by boil¹²⁰ alc¹²¹. The alc¹²² sol. is filt¹²³ while hot & deposit¹²⁴ the cinchonia on cool¹²⁵. A further quant¹²⁶ is obt¹²⁷ by evap. To render it perfectly white convert it into a sulfate by dilute sulph¹²⁸ ac. treat the sol¹²⁹ with animal charcoal filter precip¹³⁰ by an alkali & redissolve by alc¹³¹ as before sol¹³² from the mother wal¹³³ of sulfate of quinia by dilut¹³⁴ them with wat. precip¹³⁵ with ammonia collect the precip¹³⁶ as before. is further purif¹³⁷ by a 2nd sol. & crystal¹³⁸. Cinch. consist¹³⁹ of $C^{12}H^{12}ON$. exp¹⁴⁰ to the air it absorb¹⁴¹ carb. ac. & effervesces with acids. its saline sol. in wat. is disting¹⁴² from other veget¹⁴³ alk¹⁴⁴ by a red¹⁴⁵ or orange col. prod¹⁴⁶ 1st by the act¹⁴⁷ of liquid chlorine & then of ammonia. Sulphate of Cinch. or better Disulphate of Cinch. Prep¹⁴⁸ heat cinch. with a little wat. add dilute sulph¹⁴⁹ ac. gradu¹⁵⁰ till the alk¹⁵¹ is dissolv¹⁵². boil with animal charcoal previously wash with mur¹⁵³ ac. filt¹⁵⁴ the sol. while hot & set it aside to crystal¹⁵⁵. all the sulph¹⁵⁶ is sol¹⁵⁷ by alternate evap¹⁵⁸ & crystal¹⁵⁹.

a stimulant tonic; in large doses it evacuates the stom. & bowels, very efficacious in bilious diarr. & dysent.
gall^d recom^d where tonic treatmt is demand^d is however better in tropical diseases than in cooler climates. the
ferment^d infus. is much esteem^d. Infus. Ang. bru^d Ang. bk 355. boil^d wat Oj. macerate 2 hours & strain.

Falbe. Inguistura is thicker, harder & heavier & more compact, resinous fract. epid^d yell^d gray with prom-
inent white spots, somet^d cov^d by a ferrugin^d effloresc. intern^d surf smooth, brown, unlike the real Ang. is
separable into laminae, powd. white slightly yell. inod. intensely bitter. does not soften by macerat. or
contains an alk. ppl call brucia which is poisonous. a drop of nitric ac. intern^d applied gives a blood
red spot. external gives an emerald green spot. on the true bk a dull red spot is made on both surf.

Cascarilla.

Grows wild in the W^d Ind^s accord^d to Browne who names it sea-side balsam, is a small shrub from 4 to 5 ft high.
Dr Wright saw it in Jamaica 20 ft high. branch^d thickly at its summit. leaves bright green above, flow^d
whitish in terminal axillary racemes. very abund^t in the Bahamas & took its name from the isle of
Elutheria. prop^d pplly from these isles, in bags or casks. 1st Variety, rolled in pieces of every size from 3 to 4 inches
long & ½ inch diam. to the smallest fragm^t. epid^d dull whit^d or gray^d white, often partially, or entirely remov^d
leav^d a dark brown surf. inner surf redd^d brown, fract. chocot. col. the small pieces, somet^d curv^d, have a
distinct abrupt edges as if broken from the branches. 2^d Variety, 1 to 2 inches long, very thin without epid^d
not reg^d quill. ± longit^d curv^d, with a woody fibre often attached to the intern^d surf. giv^d an appear^{ce} of hav^d
been shav^d off the plant with a knife. Prop^d. arom^t odour, more distinct by frict. taste warm spicy & bitter.
brittle, fract short. burnt emits an odour of musk, but weaker & more agreeable. this is a disting^d mark
from all other bks. alcoh. or wat. partial^d extract its virtues but dilut^d alcoh. is the proper menstruum.

Med prop^d. Aromatic & tonic employ^d in dyspeps. chron. diarr. & dysent. flat^d colic, debilit^d of stom & bow^d. where a
gentle stimulat^d effect is desired. is somet^d comb^d to pow^d of bitters, smoked with tobacco causes vertigo & in intoxicat^d. Infusum
Cascar. bru^d-cascar. 3j. boil^d wat Oj. macerate 2 hours in a cov^d vessel & strain.

Sulp. of Cinch continued is white, very bitter, flexible skin? 4 sided flat prism terminat^d by an incl^d face & ngly collect^d in elastic
sol in 5-7 parts wat at mod^t temperat^r in less of boil^d compos^d of 100 parts cine. & 13,021 sulp. ac. Lauria whitish, usually cleave out
may be crystal^d from its alcoh^l sol. in nearly silky needles fusible without chem change at 300° F. becomes brittle on cool^d
more bitter than cinch. sol. in ether & in fix^d & volat^l oils very sol in alcoh. nearly insol in wat. The alcoh. sol is intensely bitter
it forms crystal^d salts with acids. The salite, tartate & oxalate are nearly insol in cold wat & are sol in an excess of acid. unalt^r
erale by exposure to air. its saline sol. is disting^d from other veget^l alkalies by the emerald green col of treat^d by a sol. of chlor^l
& then with ammonia, which changes to a white or violet upon saturation with a dilute ac. decompositⁿ CHON. Prep. treat
sulphate of quinia by an alk^l solutⁿ. collect the precip^{it} wash it till the wat. comes off tasteless, dry it dissolve in alcoh. & slowly evap.
Kinic acid or Cinch^l acid or Quinic acid & the kinates of cinch^l & Quinia Prep of Kinic ac. Evap. the infus. of bk to a solid
consist. treat this extract by alcoh. the residue is a viscid matt^r apply of mucilage & kinate of lime (kin of lime) is
sol in wat. but not in alcoh. form of this residue an aqueous solutⁿ & allow to evap. at a gentle heat, cryst^s of the kinate
are deposit^d. Dissolve the salt thus obtain^d in wat. decompositⁿ it by oxalic ac. the lime is precip^{it}. the kin. ac. remains
in solutⁿ. cryst. by spontaneous evap. The cryst. are transpar^t, colorless, sour & sol in wat & alcoh. The kin of lime & quinia
are obtain^d by direct combinatⁿ of their consist^r for by the mutual decompositⁿ of the sul^l of those alk^l & the kinate of lime
kin. of cine of difficult cryst^r very sol in wat. sol in alcoh. bitter & astring^t. kin. of quinia. cryst^r in crusts of a mam
mulated form, opaque or semitransp^t. very sol. in wat. less so in rectif^d alcoh. very bitter like yell bk. Bk as a febr
refuge though unknown to the civil^l world until the middle of the 17th century was probably used by the Peruvians long before
this period. Bonmaldt ascribes the discov^y of its febrifuge qual^{ty} to the Jesuit mission^{is} in Peru. Ruiz & Pavon ascribe its
discov^y to the Peruv^l. It was introduc^d into Spain in 1640 by the Countess Cinchon wife of the Viceroy of Peru hence called the
pulvis Compositⁿ ac & the Peruvian bark powder soon being sold by them at its weight in silver, had reputatⁿ in England
in 1655. In 1679 Louis XIV. bought the secret from Sir John Tallbot (an Englishman) residing in France under the name
of English powder) and divulg^d it. Effect on the System. Taken into the stomach, excites warmth in the epigastrium
which somet^e reaches even the breast & somet^e causes consid^{bl} gastric & intest^l irritatⁿ. even Nausea & Vomit^l. After a while
there is increas^d circulatⁿ if the dose is repeat^d all the function moderate^d excited effect on the nerv^l system is combin^d by a sense
of tension or fullness or slight pain in the head, ringing in the ears & partial deafness. These effects rank bk at the head of the Tonics
& also produces pecul^r effects indep^{nt} of its tonic operatⁿ. viz that of break^g the chain of morbid associatⁿ & interruptⁿ the progress of
disease when administ^r between the paroxysms of interm^l disorders. It is probable that in these intervals a chain of morbid
actions is going on out of our sight within the nerv^l syst. So also is it pble that bk produces in the nerv^l syst. an act equally mysterious
superadd^d that of the disease & thus effect^s a cure. this is its anti-intermitt^l power. Fever & ague treat^d early & judiciously
yields almost invariably to its influence dose 3i to 3ii in divid^d doses between intermissions till the disease
is subdued or the remedy found inefficient. Hemorrhagia, violent pains in the eye face & other neuralgic attacks
are somet^e immediately reliev^d by bark. Epilepsy with regular interm^l. between the convuls^l has been cured by it.
The hectic interm^l is often temporarily reliev^d by it. Diarrhœa & dysent^l takⁿ the interm^l form are cured by its
Remitt^l fevers with very decided remission often yield to the use of bk if preced^d by proper depletⁿ measures.

by distillat. a volat. oil rises hav^g the odour of Myrrh leav^g the subst^g of the re^main^g simply bitter. the gum resin is sol. in alkali sol^s & triturat^d with them in the crys^t state forms a tenacious liquid. Hence Carb. of Potassa is used to facilitate its suspens. in wat. Med Prop. a stim^l tonic, with some tendency to the lungs & uterus. hence its use as an expect^r & emmenag. in debility w^od of febrile exant^h or acute inflammation. Used in chronic catarrh phthis pulmonalis, humoral asthma &c & amenorrhoea, chlorosis &c. ^{the chalybeates or} given with other tonics & with Aloes in amenorrh. local applicatⁿ in spongy gonor^r, aphthous sore mouth of children & various unhealthy ulcers. Mistura Ferri Composita. Myrrh ʒj. Carb. of potassa ʒxv. Rose wat. f ʒviijss. Sulph. of iron in pow^r ʒj. Spirit of lavender f ʒss. Sugar refin^d ʒij. Rub the Myrrh with the rose water quick^{ly} & add, then add the spirit of lav. Sug & Carb. of pot^{ash} lastly the Sulph. of iron pour the mixtⁿ immediately into a glass bottle & shut it tight. This is the celebrit^y tonic or antiseptic myrrh mixtⁿ of Dr Griffith. The sulph. of iron is decomp^d by the carb. ppt. & sulph. of potassa & carb. of protox. of iron are form^d the excess of the alk^{ali} carbonate form^d a saponaceous compound with the Myrrh. should only be prepared when wanted. Used also as tonic in debilit^y of digest. organs espec^{lly} if attend^d with derang^{ment} of menstrual functⁿ. is contraindicat^d by inflammatⁿ of the gastric mucous memb^{er}. dose f ʒj to f ʒij two or three times a day Pil Aloes & Myrrhac Pow^r Aloes ʒij. Pow^r Myrrh ʒj. Saffron ʒss. Syrup Q.S. beat together & divide into 480 pills. is a warm stim^l cathartic in debility attend^d with constipatⁿ. retentⁿ or suppressⁿ of the menses. 3 to 6 pills a dose. Pil ferri compositae Pow^r Myrrh ʒij. Carb. of soda. Sulph. of iron. aa. ʒj. Syrup. Q.S. rub the Myrrh with the carb. of soda then the sulph. of iron rub again is a good emmenagogue & antiseptic tonic beat wth syrup & form 80 pills make little at a time dose 2 to 6 pills 3 times a day. Pil. galbani composit. Galbanum, Myrrh aa. ʒjss. Asafoetida ʒss. Syrup. Q.S. beat together divide into 480 pills. from 3 to 6 pills a dose. an antispasmodic & emmenagogue in chlorosis & hysteria. Pilulae Rhei compositae Pow^r Rhubarb. ʒj. pow^r Aloes ʒvi. pow^r Myrrh ʒss. oil of pepper mint f ʒss. Syrup of orange peel Q.S. beat together & form 240 pills. dose 2 to 4 pills twice a day. a tonic laxative for costiveness & debility of stomach. Tinct. Myrrhac Pow^r Myrrh ʒiv. Alcohol Oijj. macerate 14 days & filter through paper. pure alcoh. forms a clear sol. & is preferable. diluted alcoh forms a turbid sol. externally applied to stimulate indolent ulcers to promote the exfoliatⁿ of loose tissue as a stim^l expectorant & emmenag. is from f ʒss to f ʒj.

Angustura.

Small tree, irreg^{lar} branch^{es} from 12 to 20 ft high. erect stem 3 to 5 inches diam. smooth grayish. leaves smooth, vivid green, when fresh of a strong tobacco odour grows in the north of south America at from 600 to 1000 ft above the level of the sea is only brought from the W. Ind. ports. Prop var in length slightly curv^d rarely quite sm^{ooth} flat. a line to line or more thick, pared away towards the edges, spid^{er} light yell^{ow} gray or whit^e easily scap^{ed} off by the nail, internally yell^{ow} fawn col. fragile, short resinous fract. powder pale yell. macerate in wat. becomes soft, tenacious & can be cut in strips with scissors. smell peculiar & disagreeab. when fresh, diminish^{es} with age. bitter, aromat^{ed} leav^g a pung^{ent} sensatⁿ at the end of the tongue. yield^s its virtues to wat & t. Alcoh. Med prop is not estimat^d as much as formerly, is

Med. props of Cinch continued. In the less diseased act. in the interval the better the chance of success. if it exceed a cert. point it aggravates the compl. It is beneficial^{ly} used in all morbid condit^{ns} of the syst. where a permanent corroborant effect is desired provided the stomach be in a proper state to receive it. In low or typhoid diseases where now or very moderate inflammation exists or has passed to the suppurat^{ion} or gangren^{ous} stage it is of use in support^{ing} the syst. till the morbid act. ceases. as in the latter stages of typhus gravior, malignant scarlatina, measles & small pox; in carbuncle & gangrenous erysipelas, and in chronic diseases connect^{ed} with debility as a tonic. as in atrophy, dropsy, passive hemorrh. cert. forms of dyspeps. distent^{ion} cutaneous affect. amenorrh^{ea}, chorea, hysteria, in fact where a const^{ant} effect is desired & no contra indicat^{ion} sympt^{oms} exist. great caution is necessary in its administrat^{ion} especially if the stom. or bowels are irritated should the tonic be avoided. In doubtful cases, profuse perspirat^{ion} during sleep affords an indicat^{ion} for its use. In intermitt^{ents} the red or yell is preferable to the pale, the red being the most powerful of the 3. The pale is perhaps preferable as a tonic being less offensive & irritat^{ing} to the stomach & bowels. Bk is most efficacious in colic but many stomachs refuse it & patients dislike^d to encounter its disagreeable taste, the sulph. of quinia is only used in intermitt^{ents} if this fails then use the powd^{er} Bk. in subst. its effects are often improv^{ed} by admin^{ist}. with other med^{ic}. R. Cinchon. pulv. — 3ss. R. Cinchon. Pulv. pulv. — 3ss. Serpentinariae pulv. — 3j. R. Cinchon. Pulv. pulv. — 3j. Sicc. Simoni-recentis — f3ij. Misce in pulveres quatuor divide, utat^{ur} vel quatuor quaque hora Sumenda. Sodae Carbonat. — 3ss. Vin. Oporto. — f3iv

In chronic disease it is customary to use the infus decoct^{um} ^{Sumenda.} ^{Moisee.} Tertia pars, tertia quaque hora sumenda. or extract preferably to the powd^{er}. Trinct. Cinch. Composita Cinchon pulv. 3ij. bruise orange peel 3jss. Serpentinaria bruise 3ij. daffoon cut 3i. Red Saunders rasped 3i. diluted aleoh. f3xxx. Macerate 4 days, Express & filter through paper or beat the dry materials together moisten thoroughly with dilut^{ed} aleoh. let stand 48 hours displace by dilut^{ed} aleoh. till f3xxx. of filt^{er} liquor are obtain^{ed}. The same process of displacement is used in the trinct. using only the bk & alcohol. The comp. trinct. is an excell^{ent} stomach cordial is somet^{imes} add^{ed} to the infus or decoct^{um} or the salts of quinia in low forms of fever. Aromatic. sulp. ac. is somet^{imes} add^{ed} to it. Extract. Cinch. Cin. pulv. lb. i. Aleoh. Oiv. macerate 4 days, filter by a displacement apparatus when the liquid ceases to pass pour on wat^{er} suffic^{ient} to keep the surf. cov^{er} allow Oiv of filt^{er} trinct. to pass set it aside & continue till you get Ovi. of infus. evap. each to the consist^{ence} of thin honey then mix & evap. so as to form an extract. Quinia Sulphas Prep. take. Yell. bk pulv. lb. i. Muriat. act^{ed} 3ij. G. lime in powd^{er} 3v. Wat. congie. V. Aleoh. sulp. ac. Animal Charc^{el}. aa. Q.S. Mix $\frac{1}{3}$ of the Wat with $\frac{1}{3}$ of the Mur. ac. boil with the bark & strain through linen. repeat on the residu^{um} twice as before & strain. mix the decoct^{um} while the liquor is hot add the lime previously mixed with 2 pint of wat. stir & until the Quin is entirely precip^{itated}. Wash the precip^{itate} in distill^{ed} wat. press, dry & digest it in Aleoh. Pour off the liquor & repeat the digest^{ion} till the Aleoh. is no longer bitter. Mix the liquors distill off the Aleoh. till a brown viscid mass remains remove it to another vessel add $\frac{1}{2}$ gall. distill^{ed} wat. heat to boil & add enough Sulp. ac. to dissolve the impure alkali. Then add an 3 + $\frac{1}{2}$ animal charc^{el}. boil for 2 minutes, filter while hot & set it aside to crystal^{ize}. if before filt^{er} wat. the liq^{uid} be entirely neutral. add a little sulp. ac. if acid enough to render litmus paper bright red add animal charc^{el}. Separate the cryst^{als} from the liq^{uid} dissolve them in boil^{ing} wat. slightly acidulat^{ed} by sulp. ac. add a little animal charc^{el}. filter & set aside to crystal^{ize}. Wrap the cryst^{als} in bibulous paper & dry by a gentle heat. The moth. wat. will give over add it^{ing} quant^{ity} by precip^{itating} the Quin by sol^{ution} of ammonia & heat^{ing} the precip^{itate} as already describ^{ed}. Prop. is in fine, si liq^{uid}

Abinthium from the Akenisia abinthium. strong odor, very bitter, nauseous taste which it imparts to water & alcohol. Composit. very bitter, & an insipid azotized matter, very bitter resin & subk. a green volatile chlorophyll, albumen, starch, lignin & saline matter. Med prop. highly tonic, enters the circulation & embitter the milk & flesh of animals. in large doses irritates the stomach & excites the circulation. the herb applied externally as an antiseptic & discutient. dose in subk. the leaves & flower parts being alone offic. from ʒij to ʒij. Infus. abinth. macerated 3 in a ʒij. water. dose from ʒij to ʒij. Abinthium is very little used in the U.S. ^{The root - fus. to be free is emetic.}

Tanacetum, perennial plant. 3 ft. high, stem erect, obscurely hexagonal, striat. branch at the summit flowers yell. in dense terminal corymbs. flowers from July to Sept. leaves & seed officinal. grows wild, in old fields, along roads &c. odor strong, peculiar, fragrant, diminished by dry. Taste warm, bitter, acrid & aromatic. imparts its virt. to water & alcohol. its medicinal virtues depend on a bitter extract & a volatile oil. used as abinth. as an anthelmintic for which purpose the seed are most effectual, it has the prep common to the aromatic bitter, is very little used in the U.S. basis as slightly emmenagogue.

Marubium, a native of Europe, grows on our roadsides flowers in July & August. The white hoarhound has a perennial fibrous root & numerous quadrang. erect downy annual stems from 12 to 15 inch high. leaves roundish ovate. dentate, wrinkled, veined, hoary beneath. flowers white in crowded axil. whorls. Prop. strong agreeable odor, lessened in dry lost by keeping. taste bitter & durable. yields its virt. to water & alcohol used pply for catarrh & other affect of the lungs attended with cough & copious expectorat. Infus. ʒij of the herb to boil w/ ʒij of water a wine glass full, peruv. ʒr xxx to ʒij. used in syrup & candy. Used more by families than by practitioners. by whom it is considered as nearly destitute of medicinal quantities.

Myrrha:

A small tree with a stunted trunk, white gray bark furnished with abortive branches terminal in spines leaves ternate, consist of obovate, blunt, smooth, obtusely denticulate leaflets of which the two lateral are much smaller than that at the end of fruit brown, oval lanceolate point. longish narrow. Native of Arabia Felix near Ysion found in dwarfish thickets interspersed with Acaciae and Ephorbiae, formerly the best Myrrh came by way of Egypt to the Levant & the inferior from the E. Indies, the 1st known as Turkey Myrrh the 2^d as India Myrrh it now comes mostly from the E. of all qualities, only in best of 100 or 200 lb. Prop. in small irreg. fragments or tears or in large masses of agglutinated part differ in shade of col. pieces vary from the size of a pea to that of the fist. often pumery on the surf. the good quality is redd. yell. or redd. brown translucent, strong odor, peculiar & somewhat fragr. bitter aromatic taste. brittle pulverizable, shins fract. irreg. in masses & presents some whit. or yell. veins. powd. light yell. if chewed is friable then adhesive, is inflammable but does not burn vigorously, infusible. inferior is darker, more opaque, less odorous mixed with impurities purchase rather in mass than in powder. the adulterated powder being common & hard to detect. Sol. in water, alcohol & ether. Triturat. with water it forms an opaque yell. or whit. emulsion, which upon standing deposits the greater part of the Myrrh. The thick resin is opaque by adding water. but no precip. forms

slightly flexible, needle-shap^d cryst^s interlaced or group^d in starlike tufts. intensely bitter-like the yell bk. it
effloresces slightly on exposure to the air. loses its cryst^s at a moderate heat. is luminous at 212° especially if
rub^d at 240 it melts & looks like wax, slightly sol. in cold wat. sol. in 30 parts of boil^d wat. is deposit^d on cool^d, its cold
solutⁿ is opalescent. very slightly sol. in ether. sol. in 60 parts cold Alech. dilute ac. dissolves it readily. With an additⁿ
equiv of sulph. ac. it forms another sulphate more sol. in wat. than the offic^l salt & cryst^s from it sol. with greater difficulty.
Composit. in the cryst^l form 18 equiv sulph. ac. 2 of quinia & 8 of wat. if heat to 300° to ~~retain~~ less than 2 equiv or about 4%
of wat. it undergoes decomposition. Pulv. quiniæ sulphatis. Sulph. of quinia 3j. Gum arabic pulv. 5ij. Syrup of S.
mix together the Sulp. of Q & Gum then form with the Syrup a mass & divide into 480 pills. each one contains gr. j. of
sulph. of quinia & 2 are equal to 3j. of good Peru Bk. Adulteratⁿ. Sulp. of lime & other alk. salts, gum, sugar, marinite
starch, stearin or margaric, caffeine, salicin & sulp. of cinch. are often substituted. by careful attentⁿ to the solⁿ of
the sulphate in diff. menstrua & to its chem. relatⁿ with subst^s already spoken of these adul^s can be easily detect^d.
the presence of a mineral substⁿ not readily volat^l is discov^d by exposⁿ to red heat. the mineral is left behind. a
Volat ammoni^c salt is detect^d by the odor of ammoni^c. on the additⁿ of potass. gum & starch are left behind by alech
& fatty mat^r. by wat. acid^s with sulph. ac. sig & marinite give sweetness to the saline solutⁿ. in acid^s wat. after the presⁿ
of the quinia is an alk^l carbonate. Caffeine alters its solub^l in diff. menstrua. Med prop^s. prod. the same effects as the
seru^m bk. has a strong effect upon the brain even in ordin^d doses causing a feeling of lightness or distension in the head
ringing, buzzing or roaring in the ears, hardness of hearing &c. a reasonable degree of these sympt^s is favorable. for
large doses from a ʒ to a ʒss or more severe headache, vertigo, deafness, diminit^d or loss of sight, dilat^d & immov^l
able pupil; loss of speech, tremblings, intoxicatⁿ or delirium, coma & great prostratⁿ. enemas also great dimin^d
of the pulse as low as 50 or less beats per minute. some^s prod^s great gastric & intest^l irritatⁿ. causⁿ of oppression
nausea, vomiting, purging &c. given in large doses in diseas^d states it has been the direct cause of fatal result
not from its peculiar act. but by cooperatⁿ with the disease in establish^d intense irritatⁿ & inflamⁿ. It cannot
therefore be rank^d among the poisons. It would be dangerous in practice to use it as a sedative. It is applied on the
raw surf^s produc^d by a blister & inject^d in the rectum as follows from 6 to 12 gr. with ʒ iii liquid starch & from
20 to 40 ʒtt. linimentum every 6 hours in ordinary cases.

Cornus Florida

Found all over the U. S. most abundant in the mid^d states from 15 to 20 ft high to even 30 & 25. trunk 4 to 5 inch^s diam.
compact cov^d by a brown bark, epiderm^l crack^d all over. branch^s spread^d regularly dispos^d sent^d from pairs some^s in
pairs of 4. leaves opposite, oval, 3 inch^s long, point^d; dark green, whitish beneath & strongly veined at the close of
summer they speckle black & in fall change to bright red. Flowers are small yell^l, collect^d in heads surround^d by a
conspicuous involucre, consistⁿ of 4 white obcordate leaves with a red or purple notch at their summit. The
dark comes of various sizes & rolled some^s inward with a fawn col^d epid^l, again divided if it. The bk. is red^d gray
very brittle. powd. gray^l ting^d with red. odor feeble. taste bitter, as King^s & slightly arom^l. water & alech extract
its virtues Decock or flor linim^l logwood ʒj. Wat of boil 10 minutes in a cov^d vessel & strain while hot. dose ʒ iii.

Eupatorium

An indigenous perennial plant, with numerous herbaceous stems which are erect, hairy, round from 2 to 5 ft high, simple below, tricotomously branched near the summit, the leaves are peculiar & may be considered as perforated by the stem, perfoliate, or as consist^d each of 2 leaves joint at the base, connate, thus considered, they are opposite & in pairs decussate each other at right^{cs} dist^{cs} on the stem. are narrow compared to their length, serrate, pointed, wrinkled, paler beneath than above but with whitish hairs, giving them a gray-green ed. flowers, white, numerous, on hairy peduncles, in dense corymbs, forming a flattened summit to the plant. flowers from mid summer till the end of Oct. found all over the U.S. grows in meadows, on the banks of streams & in moist places, only in bunches. faint odor, strong bitter peculiar taste: its virtue is probably in an extract^{re} not readily taken up by water & alcohol. Med Prop^s. Tonic diaphoretic & in large doses emetic & aperient, given in warm infusion to vomit & copiously sweat it will often arrest a nascent enteric has been recommended as a diaphoretic in inflam^d rheumat^{is} in the absence of arterial excitement. as a tonic in dyspepsia & gent^l helict^{cs} as other bitters. Infus. eupatorii. Thoroughwort (dried herb) 3j. boil^d w^{at} 0j. macerate 2 hours in a cov^d vessel & strain.

Serpentaria.

An herbaceous plant, with a perennial root, consist^d of numerous slender fibres proceed from a short horizontal caudex. several stems often arise from the same root. They are 8 or 10 inches high, slender round flexuose, joint at irregular dist^s of tan red^d or purple at the base, leaves pale yell^l green on short petioles at the joints of the stem. The flowers proceed from the joints near the root, stand singly on long, slender, round joint^d peduncles bent down so as nearly to bury the flower in the earth & decay leaves. grows in rich, shady woods in the Mid. South^l & west^l states in the valley of the Ohio & the mountain regions of our interior, flowers in May & June. there are 3 other species often found with A. serps^a in shops though not offic^l. have to a lesser degree the same med. virtues. they are the A. hirsuta. A. hastata. A. reticulata. a new variety sent from D.C. called by the Indians in Arkansas quite equal to the A. serps^a. Prop^s in tufts of long, slender, interlac^d & in the fibres, attach^d to a short, cork^d knotty head, in the recent state is yell^l, becomes brown, powd. gray^l, strong aromatic & camphor^l taste warm bitter & camphor^l. yield^l in vis^l to water & alcohol. infus. yell^l brown. Sind^l night green round turbid by the add^l of water. Composit^l. volat. oil, a yell^l litt^l ppl. sol^l in water & alcohol. resin, gum, starch albumen, lignin, & various salts. the Spigelia Marylandica or pink root is sometimes mixed with it but should be carefull^l separated. Med Prop^s stimulant tonic also a diaphoretic or diuretic, accord^g to the mode of its applicat^l. too largely taken it causes nausea, griping pains in the bowels even vomit^l & dysenteric tenesmus. is admirably adapt^d to typhoid fevers, whether idiopathic or symptomatic when the syst. feels the necessity for support but is not able to bear active stimulation. In exanthematic diseases of slow progress it promotes the cutaneous affect. Serviceable as an adjunct to Serp^a Bk. or to sulph. of quinia in intermitt^l fevers & typhoid diseases. Infus. serps^a. Vigor snake root 3ss. boil^d w^{at} 0j. macerate 2 hours in a cov^d vessel & strain. Infus. pep^a. to the powd.

Medical properties and uses.

As a tonic, used in powder or cold infusion. Dose of the powder, 20 or 30 grains, of the infusion, fʒij. repeated 2, 3, or 4 times daily.

As a diaphoretic, used in the state of warm infusion. Dose, fʒij. every 2 or 3 hours.
As emetic, a small bowlful of the infusion may be taken warm.

VIRGINIA SNAKEROOT.—SERPENTARIA. U. S.

Root of *Aristolochia Serpentaria*, and perhaps other species of *Aristolochia*.

The plant indigenous, herbaceous, perennial. General character—place of growth—place where the root is collected.

Character of the root—colour—colour of the powder—odour—taste—relations to water and alcohol.

Active ingredients, a bitter principle and volatile oil.

Adulterations.

Effects on the system—medical uses.

Used in powder and infusion. Dose of the former, 10 to 30 grains, of the latter, fʒj. to fʒij. every 2 or 3 hours. Tincture officinal, dose, fʒj. to fʒij. Decoction objectionable.

Bitters resembling Virginia snakeroot in combining a bitter principle with volatile oil, and possessing stimulant properties, are *wormwood* (*Absinthium, U. S.*), *tansy* (*Tanacetum, U. S.*), and *horehound* (*Marrubium, U. S.*). Remarks on each of these. None of them much used.

MYRRH.—MYRRHA. U. S.

Exudation from *Amyris Myrrha*—*Balsamodendron Myrrha* of some writers.

Character of the plant, and place of its growth.

Two varieties of myrrh, India and Turkey, the former from the East Indies, the latter from the Levant, both probably originally from the same source. Difference between these varieties.

Properties of myrrh—size and shape of the pieces—translucency—colour—colour of the powder—fracture—odour—taste—chemical nature—relations to water and alcohol—influence of alkalis on its solubility—result of distillation.

Active principles, resin and volatile oil.

Effects on the system, and therapeutical application.

Used in powder, pill, emulsion, and tincture. Dose in substance, 10 to 30 grains—of the tincture fʒss. to fʒj. The tincture seldom used internally. Reason why the tinctures of myrrh and other gum-resins are better made with alcohol than with diluted alcohol.

ANGUSTURA BARK.—ANGUSTURA. U. S.

Bark of *Gallipea officinalis*, a small tree growing in South America.

Whence brought—shape and size of the pieces—colour—colour of the powder—smell—taste—relations to water and alcohol.

Active constituents, bitter extractive and volatile oil.

Effects on the system, and therapeutical application.

Used in powder, infusion, and tincture. Dose of the powder 10 to 30 grains, of the infusion fʒij., of the tincture fʒj. to fʒij.

False Angustura bark described, and its poisonous properties alluded to. Its active ingredient, an alkaline principle called *brucia*.

CASCARILLA. U. S.

Bark of *Croton Eleutheria*, and possibly of *C. Cascarilla*—shrubs growing in the West Indies.

Whence imported. Two varieties. General characters, as size, shape, colour, &c.—smell—odour when burnt—taste—relations to water and alcohol.

Active ingredients, extractive and volatile oil.

Medical properties and uses.

Used in powder and infusion. Dose of the former 20 to 30 grains, of the latter fʒij.

3. Aromatics.

Substances having a fragrant odour, and a pleasant spicy taste, with little admixture of disagreeable flavour. Owe their distinguishing properties to volatile oils.

Volatile, essential, or distilled oils.—Odour—taste—volatility—point of ebullition—how affected by boiling water—inflammability—solubility in water, alcohol, ether, and fixed oils—composition—effects of exposure—adulterations and modes of detection—mode of preparation.

Aromatics more stimulant than tonics in general—more local in their action than the diffusible stimulants—produce a peculiar cordial influence on the stomach—obviate sickness—expel flatulence—relieve spasmodic pains of the stomach and bowels.

Often combined with other medicines, which they render more acceptable to the palate and stomach, and less disposed to gripe.

Decoctions and extracts of aromatics objectionable preparations.

ORANGE PEEL.—AURANTII CORTEX. U. S.

Oranges, fruit of *Citrus Aurantium*—two varieties—difference in the rinds—virtues in the outer portion.

Sensible properties of orange peel, and relations to water and alcohol.

Usually employed in infusion, made in the proportion of half an ounce to a pint.

The confection an official preparation. Uses.

CINNAMON.—CINNAMOMUM. U. S.

Prepared bark of *Cinnamomum Zeylanicum* and *C. aromaticum*.

General character of the trees—place of growth—mode of preparing the bark. Two commercial varieties—*Ceylon cinnamon* and *China cinnamon* or *cassia*. Botanical sources. Whence imported.

Properties of the bark—shape—size—colour—colour of the powder—consistence—fracture—odour—taste. Difference in these respects between the two varieties.

Active principle, volatile oil, with tannin. Two varieties of the oil. Sensible properties of oil of cinnamon.

Medical uses those of aromatics in general. Especially applicable to cases requiring astringents.

Dose of the powder, 10 to 20 grains. In infusions of other medicines, employed in the proportion of one or two drachms to the pint.

Cinnamon water—*Aqua cinnamomi*—mode of preparing—uses.

Tincture and compound tincture of cinnamon, official. Dose fʒj.

Cinnamon enters into numerous official preparations.

CANELLA. U. S.

Bark of *Canella alba*, native of the West Indies—derived from the branches, freed from the epidermis—shape and size of the pieces—fracture—colour—colour of the powder—odour—taste—relations to water and alcohol.

Active ingredients, volatile oil and bitter extractive.

Medical uses—ingredient in the *Powder of Aloes and Canella*.

Winter's bark—from *Drymis Winteri*—place of growth—similar in properties to canella—never used here.

CLOVES.—CARYOPHYLLUS. U. S.

Dried unexpanded flower-buds of *Eugenia caryophyllata*.

General character of the tree and place of growth.

Properties of cloves—shape—size—colour—colour of the powder—odour—taste—relations to water and alcohol.

Chief active ingredient, volatile oil, called oil of cloves (*Oleum Caryophylli*, U. S.)—mode of preparation—sensible properties—specific gravity.

Used in powder, infusion, and oil. Dose of the powder, 5 to 10 grains—of the infusion, made with two drachms to the pint, fʒij.—of the oil, 2 to 5 drops.

Cloves enter into numerous official preparations.

NUTMEG.—MYRISTICA. U. S.

Kernel of the fruit of *Myristica moschata*.

General character of the tree, and place of growth—description of the fruit—mode of preparing the mace and nutmeg.

Shape of nutmegs—size—character of the surface—colour—appearance when broken—mode of reducing them to powder.

Interesting ingredients, a volatile and a fixed oil, the former of which is the active principle. Mode of preparing the *volatile oil* (*Oleum Myristicæ*, U. S.)—colour—specific gravity.

Fixed oil called *oil of mace*—mode of obtaining it—colour and consistence—uses.

Mace—shape—colour—odour—taste—ingredients as in nutmegs—uses.

Nutmegs said to combine narcotic with aromatic properties.—Dose of the powder, 5 to 20 grains—of the volatile oil, 2 or 3 drops.

Prunus Virginiana

Michx. saw indiv^{ls} of this plant on the banks of the Ohio from 80 to 100 ft. high, trunks 12 to 15 ft circumf. & undiv^d for 25 ft. to 30 ft. as gnl^l found in the Atlantic States it is much smaller, has numerous branches, trunk regul^r shap^d, covered by a black bk, which detach^s itself semi-circularly in thick narrow plates, this is characteristic. Leaves oval, oblong, unequally serrate, smooth on both sides, of a beautiful br^{ght} green. flowers small, white, collect^d in long, erect racemes. flower in May, fruit size of a pea when ripe sh^d black purple. of a sweet^{ish}, astring^t, bitter taste, much used to flavour spirituous liquors. the wood is valuable to cabinet makers. The tree gnl^y found in open fields near fences, abounds in the middle state, where the soil is fertile & the climate temperate. The inner bk is offic^e & that recently dried is best. Prop^s of various sizes, wood latterly, only bend^d of 1st pair, lively red^d, cinnamon col. brittle, pulver^{isable}, fracture red^d gray, p^{er}mea fawn col. When fresh or boil^d in wat^r emits an odour of peach leaves, agreeably bitter, aromatic, with a peculiar flavour of bitter almond. imparts its virt^s to wat^r cold or hot, giving a red^d infusion, much in appear^{ance} like madeira wine. boil^d injures its peculiar flavour & its med^{icinal} virtues by volatilizing the volatile oil & affect^{ing} a chemical change. It contains starch, resin, tannin, gallic ac. fatty mat^r, lignin, red col^d, met^{als} salts of lime, & potassa & iron, also a volat. oil associated with hydrocyanic ac. of light straw col^d 2 drops of which will kill a cat in 5 minutes. Med^{icinal} prop^s admirably adapt^d to cases in which debilitated stomach or deb^{ility} of the syst. is united with gnl^l or local irritat^{ion}. is highly useful in the hectic fev. of scroph^{ulous} & consumpt^{ive}. in gnl^l deb^{ility} succ^{eed} inflammatory diseases to many cases of dyspepsia. Infus pruni Virgin. Take of bruic^d wild cher^y Bark 3ss. Cold Wat^r. Oj. Macerate 24 hours & strain. the process of displacement is well adapt^d to this prep.

Anthemis

An herbaceous plant with a perennial root, stems from 6 inches to 1 ft long, round, slender, downy, trailing, divid^d into branches turn^{ing} upwards at their extrem^{ities}. leaves bipinnate, leaflets small, thread like, acute, gnl^l divid^d into 3 segm^{ts}. flowers solitary, yellow & white rays. calyx common to all the florets, of a hemispherical form composed of small hairy scales. The florets are numerous, narrow & terminat^d with 3 small teeth, the whole herb has a peculiar frag^r & a bitter aromatic taste. a native of Europe, grows wild & is cultivated in which case the flowers become double & are consequently larger, the disk is less develop^d than in the single flower. They must be quickly dried. The whitest are the best. it is often cultivated in gardens for family use. Prop^s large, nearly spherical, dull white, frag^rant & a warmish, bitter, aromatic taste. impart their virtues to wat^r & alcohol. bruic^d wat^r extracts nearly $\frac{1}{4}$ their weight. Med^{icinal} Prop^s in small doses a mild tonic & acceptable to the stom^{ach}. in large ones an emetic, cold infusion beneficial in enfeebled digest. both as an orig^{inal} affect^{ion} or consequ^{ent} upon acute disease. also gnl^l deb^{ility} & languid appetite attend^{ing} convalescence from idiopathic fevers. The tepid infus. aids the operat^{ion} of emetics. flowers applied externally as fomentations in irritat^{ion} or inflamat^{ion} of the abdominal viscera & as gentle mic^{stic}ants in flabby ulcers. Infusum Anthemidis. Chamomile 3ss. Boiling water Oj. Macerate for ten minutes in a covered vessel & strain. The cold infusion is more grateful to the stomach & palate but is less efficient as an emetic than that made by boil^d wat^r.

Aurantii Cortex.

Height 15 ft. bark smooth, shiny green-brown, branch^s from the base up, wild is furnish^d with a red^d spines. leaves shiny pale green, of rub^d between the fingers are very frag^t. flowers delightful odour are large, white, singly or in clusters. fruit a spherical berry, yellow or orange col. somewhat flatten^d at either end, divid^d into vertical cells each contain^g from 2 to 4 seeds surround^d by a pulpy matter. rind double, a thin particular outer part. abounding in volatile oil & an inner thick, white, fungous, insipid & inod. layer. the fruit & flower are found at the same time on the tree and at every stage of develop^t. a 2^d variety is the Citrus vulgaris, of which the seville orange is the product, is sweeter & much less bitter, a native of China & India early introd^{uc}ed in Europe later in America & is now spread over the whole globe. The Havana orange is the best. Properties. grateful arom^{at} odour, warm bitter taste depend^g on the essent. oil in the outer part. The seville or. is more bitter than any other variety. The essent. oil may be had by expression or by distillat. with wat^r. its prop. resemble much those of lemon & is used in the same manner. Both varieties yield their virt^u to wat^r & to Mezh. the infus. of the leaves is a gentle stim^{ul} & diaphoret^{ic}. wat^r distill^d from the flower is very frag^t & esteem^d as an antispasmodic. an oil call^d neroli is distill^d from the flower & used in perfumery, is an nig^{er} in cologne wat^r. that of the seville the best. Small unripe oranges, dried & smooth^d in a lathe used to maintain discharge from issues. Confectio Aur. Corticis. Fresh or peel grat^d lbj. refin^d Sugar ttij. beat the orange ps. with the sug. grad^l add till thoroughly mixed. an agreeable vehicle or adjunct of tonic or purgative powders.

Cinnamomum

Cin. Zeylanicum. Tree 20 or 30 ft high, trunk 12 to 18 inch^s diam^t. bark thick & scabrous. branches numerous, strong, horizont. & declin^d, the young shoots are beautifully speckled dark green & orange col^d. leaves dark green above, light col^d beneath, flowers, small, white in axillary panicles. fruit an oval berry, larger than the black currant. thick brown surf with numerous white spots, adhering like an acorn to its receptacle. The tree emits no smell at a distance. The bark of the root has the odour of cinna. with the pungency of camphor & yield^s this ppl on distillat. The leaves are of a spicy odour when rub^d & a hot taste. the petiole has the flavour of cinna. The odour of the flowers compar^d to that of newly sawed bones. the fruit opened gives a terebinthinate odour & tastes like juniper berries. Native of Ceylon, coast of Malabar & has been introd^{uc}ed into Java, Isle of France, Bourbon, Cape de Verdes, Brazil, Cayenne, W. Ind. & Egypt. Its arom^{at} charact. is much alter^d by the circumst^s of soil, climate & culture. Cin. Lromaticum. This tree closely resembles the 1st mention^d. the under part of the leaves is lighter & cov^d by a soft fine down as well as the foot stalks & extreme twigs. the flowers are in narrow silky panicles. Grows in China, Sumatra, Eastern Asia, Java. brought from Canton. Ceylon the original^l collect^d wild. cultivat^d by the Dutch afterwards by the English. ppl. cinna. gardens are near Columbo. seeds planted 5 or 6 together in prepar^d soil at reg. distances forming clusters like the hazel bush. attain^t 5 or 6 ft height in 6 or 7 years. hav^g 2 or 3 shoots fit for peeling & every 2^d year will afford 4 to 7 shoots in good soil. harvest from May till late in Oct. proper shoots are selected, cut & set aside to ferment slightly for facilitat^g & decorat^g. the epid^{ic} & green matter are scraped off with a knife.

the bark dries & rolls into quills, the peeler introduces the smaller into the larger form a congeries 40 inches long
these are collected in bundles of 30 lb. & bound by slits of bamboo. The commerce was formerly a monopoly
of the E. I. Comp. is now open to all at an export duty of 3 shill¹ per lb. assorted in 3 qual. 1:2:3: the inferior
kind used for mak^g oil of cinna. Great quant. are export^d from China the best being inferior to 1st Ceylon. & the mass
being only much coarser & goes by the name of cassia. The cassia lignea from the Malabar coast is an inferior
qual. The Cayenne cinna. is of 2 qual^{ty} the 1st nearly equal ^{to} the Ceylon the 2^d resembling the Chinese. Prop^{ty} of Ceyl^{on}
Cinna. long cylindrical fasciculi compos^d of numerous quills one in the other the best is light brown yel^l. almost
as thin as paper. smooth somewhat shin^g. tolerably pliable. splints by fract. pleas^{ant} frag^{rant} odour, warm, aromatic
pung^{ent} sweet slightly astring^{ent} & highly agreeable taste. yields but little essent^{ial} oil which has a very agreeable flavour
is brought here from England, is very costly is rarely found the inferior sorts are browner, thicker, less splint^y
& very little superior to the Chinese best. the best Cayenne is like the above but paler & thicker, com^{es} from other
branches, the young being scarcely distinguishable from the Ceylon. The Chinese cinna or cassia in single
tubes of diff^{erent} sizes from 3 to 20 inch diam. some^{times} the tubes are double but rarely more than double. redder
or darker than best Ceylon. thicker, rougher, denser, shorter fract. has a stronger, more pung^{ent} and astring^{ent}
less sweet & grateful taste. is less frag^{rant} is much cheaper & nearly as good as a medicine. Recent oil of cinna
is yel^l. col. becomes red with age. the red oil is distill^d yields 2 yel^l. oils one lighter the other heavier than wat^r. has
a flavour of concentr^d cinnamon. pure taste is very hot & pung^{ent} to some^{times} even peppery ascrib^d by Pereira to
the admixt^{ure} of the leaves. Cassia oil is like the above, inferior & cheaper. Oil of cin is heavier than wat^r. is entirely
dissolv^d in alcoh. & may be distill^d from a tinct. of cin exposure to the air turns it to cinnamic or cinnamo
nic acid, two distinct resins & wat^r. Cin. ac. is colorless, crystal^{ine}, somewhat volatile, slightly sol^{uble} in wat^r. sol^{uble} in
alcoh. convertible by nitric ac. with heat into benzoic ac. some^{times} crystalizes in long kept bottles. of the resins
one is sol^{uble} in hot & cold alcoh. the other in hot & sparingly in cold alcoh. is said to be often adulterat^d with alcoh. of
oil. an adjunct to medicines h^{elps} their taste & conciliat^s the stom. A powerf^{ul} local stim^{ulant} in gaet^{ro}dynia, flatul^{ent}
colic, pain from gastric debil^{ity}. &c. Dose 1 to 2 drops most conven^{ient} in emulsion. Aqua cin. oil of cin. ℥ 3 ss. Carbon.
of Magnesia. 3 ss. distill^d wat^r Oij. rub together the 2 first add gradually the wat^r & filter through paper. used as
a vehicle dilut^d with equal meas. of wat^r. is sufficiently strong & g^{ood}ly. Deco^{ction} prop^{rietary} warm & cordial to the
stom. carminat^{ive}. astring^{ent}. more powerful as a local than a gen^{eral}. stim^{ulant} will check nausea & vomit^{ing}
an adjunct to less pleas^{ant} med. adapt^s to diarrh. is often in this complaint combin^d with chalk & astring^{ent}
Cassia buds resembling cloves are used for the same purposes as the bark. Tinct. cinam. bruise cin. 3 iij. distill^d
alcoh. Oij. macerate 14 days. express & filter through paper. or let stand 48 hours & displace 2 pints. dose ℥ 3 iij
to ℥ 3 iv. an adjunct. Tinct. cin. Compos. bruise cin 3j. bruise cardamom seeds 3 ss. bruise ginger 3 iij distill^d
alcoh. Oij. macerate 14 days. express & filter. or by displacement after 48 hours. dose ℥ 3j to ℥ 3ij. warm
aromatic wine. good in flatul. spasm of the stom. & gastric debil^{ity}. Offic. prep^s. Re. sulph. aromaticum. Infus
Catech. compos. Pulvis aromaticus. Spirit^{us} Ammon. Arom. Spir. lavandulae comp. Vinum q^{ui} &c. &c.

Savandula.

A small shrub 2 or 3 ft high some 6 ft stem woody below covered with brown l^h. divided above into numerous slender, straight, quadrangular branch^s, leaves narrow, nearly linear green or glaucous, flowers small & blue. In the U.S. it flowers in August. the whole plant is medicinal but the flowers only are official. the spikes on which they stand should be cut when they begin to bloom. Prop very frag^t & an arom^t. warm, litt^l taste. retain their fragrance long after drying. yields its virt^y to alcoh. the volat. oil giv^g the od. rises with that liquid in distillat. To procure the oil separate & still the flow^r with wat. is very fluid, lemon y^ll. frag^t. & an arom^t burning taste. Used pp^y as a perfume. carminat^e. & stimulat^e good in nervous languor & headache. dose gtj to gt v. Med Prop lavender is an arom^t. stimulat^e & tonic good in cold nervous debilit^y also a corrective, rarely used in its crude state. Spirit. lavender. Fresh lavender flowers lbjij. Alcohol Congj. Wat Oij. mix them & with a slow fire distil a gallon. Spirit. lavender. compos. Spirit of lavender Oij. Spirit of rosemary Oj. bruise cinnamon 3j. bruise cloves 3ij. bruise nutmeg 3ss. Red sanders, rasped 5ijj macerate 14 days & filter through paper a delightful compound of spices an adjunct & corrigent. good for gastric uneasiness, nausea flatulence, g^l languor & faintness. given on sugar.

Rosmarinus.

An evergreen shrub 3 or 4 ft high, erect stem divid^d into several long slender, ash colour^d branch^s leaves numerous, opposite a n^h inch long & 1/2 inch broad, turn backward at the edges, firm coriis^e. smooth & green above & whit^l & downy beneath, flowers pale blue or white & pretty large, near the ends of the branches, seeds 4 in number, oblong & naked in the bottom of the calyx. is cultivat^d in the U.S. The flower^s summits are the official part. They have a strong balsamic odour, taste bitter and camphorous & are used in an oil obtain^d by distillat. These prop^s are slightly impart^t to wat. completely to Alcoh. Spiritus Rosmarini. oil of rosemary (by weight) 5ij. Alcohol Congj. Wat Oj. mix & by a slow fire distil Congj. a grateful perfume. used pp^y as an ingred^t in lotions or liniments. Oilum rosm. colourless odour of the plant, but less agreeable. Compound C. H. O. like several of the preced^d ment^d oils, if kept in badly stopp^d bottles it deposits a stearoptene analogous to camphor dose gtij to gt vi. Med Prop gentle stimulat^e has been consider^d emmenagogue. is not much used in the U.S. much so in Europe. it enters into stimulatory powd^r used externally with other arom^t in formula^t. used in some countries as a condim^t. much sought by bees & imparts its flavour to their honey.

Canella:

Is the only species of the genus. Tree erect, soft high. branch^s only at the top, easily distinguish^d by its whit^l lvs leaves dark green shiny like laurel & of same odor. flowers small, violet col. in clusters on divid^d stalks at the ends of the branches. fruit an oblong berry contain^g one, two, or 3 black, shiny seeds. native of Jamaica & other W^{Ind} islands. Prop^s comes partially or entirely quill^d from some inches to 2 ft long & line to 2 or 3 lines thick & 1/2 to 1 1/2 inch diam. often slightly twisted. pale orange od. lighter internal^l arom^t odour like cloves. taste warm bitter & pung^t. brittle. frack short. powd. yell^l white. boil^d water extract is 1/4 its weight. The infus. though bitter has little of the warmth & pungency of the bk. yields a bright yell. tint. which wat. renders milky. by distillat with wat. it gives a yell or red^d frag^r very acrid & essential. contains a saccharine subst like mannite bitter extract resin, gum, starch, albumen & diff. saline subst. has often been confound^d with Wintera from which it differs in prop^s & comp^s. Wintera contain^g kummin & oil of iron. Med prop^s local stim^l & gatte tonic, a useful addit to tonic & purg^t med. in debilit^d digestive organs produ^c a warm cordial effect on the stom. quill^d prescrib^d in combinat. the negroes in the W^{Ind} use it as a cordiant & have a reputation as antiscorbutic Pulv Aloes & Canellae. Aloes ʒij. Canella ʒiij rub them separately into very fine powd. & mix them dose grx to grxx. this prep. has long been known as hiera piera. the canella corrects the grip^s & cure is partially the unpleasant bitter of the aloes is better given in pill than in powd. somet^l given in domestic practice infused in wine or spirit. Oryzis Winteri officinal^l call^d Wintera an evergreen rising 40 or 50 ft. again not exceed^g 60 or 80 ft bark of the trunk gray of the branches green & smooth. leaves rough green above pale bl^l beneath. flowers small, native of S. America. found along the Straits of Magellan & Chile & even in Brazil. Prop^s quill^d 1 ft long ^{1/2} inch more in diam. ^{pale} yell^l or red^d gray with red elliptic^l spots. the inside is cinnamon. somet^l black. powd. col. of Peru. bk. arom^t & od. spicy, pung^t & burn^t taste is somet^l in large flat pieces. Med prop^s stim^l. arom^t. tonic. has been used in scurvy. dose of powd. ʒss.

Caryophyllus,

Unespand^d flowers of Caryop. aromaticus M. Some of the most elegant of the tropical trees, small, pyramidal always green & has throughout the year a succession of beautiful rose flowers. the stem is hard wood covered by a smooth gray^l bk. leaves 1/2 inches long & 2 broad, firm, shiny green & are highly frag^r when bruise^d the flower exhale a strong, penetrat^d & grateful od. was formerly confined to the Molucca islands after the Dutch conquest it was extirpat^d except in Amboyna & Ternate from commercial jealousy. In 1770 Bourc, French govern^r of the isle of France & Bourbon notwithstanding the vigilance of the Dutch introduced it in his islands from the Moluccas. 5 years after it was introd^{uc} in Cayenne & the W^{Ind}. in 1803 in Sumatra, 1818 in Zanzibar They are 1st taken from the tree when it is young & the fruit has arom^t. prop^s. but feebler are picked by the hand or with long reeds & quickly dried in the sun. In the Moluccas they are often immersed in to boil^d wat. then expos^d to smoke & artific^l heat. Cloves were known to the ancients. 1st introd^{uc} into Europe by the Arabs. were circulat^d through the venetian commerce. pass^d to the Portugese & afterward to the Dutch

Foeniculum.

It is a perennial or biennial tapering root & an annual erect, round, terete smooth, green & copiously branched stem 3 or 4 ft high. leaves stand alternately at the joints of the stem are often pinnate with long point^d, linear, smooth deep green leaflets. flower in large, flat, terminal umbels with 13 to 20 rays & a scabrous involucre, fruit ovate less than 2 times long & 1 broad dark col. especially in the channels & rows with on sandy & chalky ground in Europe. The fennel cultivated here is sweeter & better than the imported probab^{ly} from being fresh. Prop. Fennel seed (half fruit) oblong oval 16 to 3 or 4 lines long, flat on one side, convex on the other, 2 halves of the cornu^met^{er} by their flat surf^{ce}. straight or slightly curved, dark gray^{ish} green. There are 2 varieties, one 2 lines long, dark, always separate, without foot stalks the 2^d is lighter & col^{or}, more prominent & of ten provided with the foot stalks in other respects like that 1st describ^d under Prop. They are similar in arom^{at} prop. frag^{rant}. Taste warm, sweet, agreeably arom^{at} & quiet^{ing} w^{ith} 3 to 4 hot w^{at}. & better to alcohol. The essent^{ial} oil is separat^{ed} by distillat^{ion} with w^{at}. Uleum Foenicis, compos^{it} $C^{13}H^{10}O^2$ is import^{ed} colourless sp. gr. 0.997.

dose gr 5 to gr 15. Caum grows wild in meadows in Europe. flowers in May & June the seeds are not perfect^{ly} till the 2^d year & ripen in August. Seeds (half fruits) 2 lines long, elongitud^{inally} wrinkled of a light yell^{ow} & the interv^{en}ing spaces dark brown, pleasant arom^{at} smell, pure^{ly} warm, spicy taste. These prop^{ties} depend on an essent^{ial} oil given up by distillat^{ion} yield their virtues to w^{at}. better to alcohol. Med^{icinal} prop^{ties} pleasant stomachic & carminative, flatul^{ent} colic. an adjuv^{ant} to correct^{ing}. dose in sublt^y ʒj to ʒj. Infus ʒij seed to bull^{ed} w^{at} Oj. the volat^{ile} oil is most employed. Uleum Cari. viscid, pale yellow brown by age od of fruit, arom^{at} & acid taste. corrects the nauseat^{ing} & grip^{ing} effects of Med^{icines}. dose gr i to gr x. Coriandrum erect round stem 2 ft high compound leaves with linear point^{ed} leaflets & small sparsely flowers white or rose col^{or}. in comp^{osit} umbels fruit glob^{ular} & separate int^{er}, half fruits. the glob^{ular} fruit is 1 inch in diam. obscurely ribb^{ed} gray^{ish} or brown^{ish} yell^{ow} smell & taste grateful warm & dep^{ends} on a volat^{ile} oil. separat^{ed} by distillat^{ion} with w^{at}. imparts its virtues to w^{at}. better to alcohol. All parts of the fresh plant when bruise^d are extremely fetid. has the od^{or} in prop^{ties} of arom^{at} dose ʒj to ʒj. a corrective &c &c.

Anisum. Native of Egypt & last introduced into Southern Europe. annual plant 1 ft high branched flowers white in terminal umbels, no involucre. Anise seeds botanically fruit. 1 line long, oval, striat^{ed} somewhat shiny green brown & a shaded yell^{ow}. frag^{rant} more so by friction taste warm sweet & aromatic. depend^{ent} on a essent^{ial} volat^{ile} oil sparingly given up to bull^{ed} w^{at}. freely to alcohol. it exists in the envelope of the seeds & is separat^{ed} by distillat^{ion}. Uleum Anisi colourless or yell^{ow} impure consist^{ent} like Uleum Coriand. Cari. Foenic &c &c. of 2 oils lighter the other heavier than w^{at}. the more volat^{ile} or cleop^{te}ne the heavier or cleop^{te}ne. compos^{it} of both $C^{10}H^{10}O$ is somet^{imes} adulterat^{ed} by spermaceti & wax or camphor the 2^d may be detect^{ed} from their insol^{ubility} in w^{at} the latter by its smell. dose gr ʒlo to gr ʒxx particularly adapt^{ed} to children & from its mildness. Uleum badianis or Staranis seed oil is of ten met^{ed} with it in this country. the staranis seed analogous in prop^{ties} comes from a diff^{erent} plant. grows in China, Japan, & Tartary. The fruit consists of several capsules join^{ed} together & star shaped each contain^{ing} a shiny black seed is much used in France for flavour^{ing} liquors. Med^{icinal} prop^{ties}, a arom^{at} carminat^{ive} in flatul^{ent} colic. a correct^{ing} of other med^{icines}. Fennel seed is prefer^{ed} in the U. S. is said to increase the secret^{ion} of milk. dose of bruise^d seed or pow^{der}. gr ʒxx to gr ʒxxx or more. The infus^{ion} is less efficient.

Our ppl. supplies come now from the W. Ind. & Guiana, those of the Moluccas are thicker, darker, heavier, more oily & more aromatic than those of the transplanted colonial tree, & are known in commerce as Ambryna Cloves. those of Bencoolen from Sumatra are deemed equal & even superior by the English. Prop. shape of a nail, little over 2 inch long with a round head & spread point, beneath it, external^l deep brown, internal^l red^d. strong & fragrant odour, taste hot, pungent, aromatic & very permanent. the best are large, heavy, brittle & exude a little oil on being pressed or scraped with the nail. the inferior qual. is light, soft, wrinkled, pale, feeble taste & smell. those from which the essential oil has been distilled are smelt^d fraudulent^{ly} mixed. wat. extracts the odour with little of the taste. alcohol extracts all its prop^s. the swarthiest leaving an excessively fiery extract which is insipid if deprived of the oil by distillation with wat. while the oil thus obtained is mild. hence the pungency is attributed to the union of the oil with the resin. the infusⁿ & oil are reddened by nit. ac. & blued by time of chloride of iron, interest^d from its similarity in this respect to Morphine. Oilum Caryoph. obtained by distill^g cloves with wat. to which common salt is add^d to raise the boil^g point. the wat. should be repeatedly distill^d from the same cloves so as to exhaust them. the good ones yield 5 or 6 their weight. Prop. recently distill^d is fluid, clear & colourless turn yellow by exposure ultimately red^d brown. has the odour of cloves & a hot, acid, aromatic taste. Spec. grav. 1.061. requires from 0 to -4° F. for congelat. is completely sol. in alcohol, ether & strong acetic ac. Nitric ac. changes it deep red & by the aid of heat converts it to oxalic ac. If long kept it deposits a crystal^{line} & tear of resin. is often adulterated by fix oils & oil of pimento & with copaiba. It consists of 1st light oil, colourless, consists of Carb^d & Hydrog. is isomeric with pure oil of turpentine & is said to possess no active prop^s (Kane). 2nd heavy oil colourless, darkens with age, od^r & taste of cloves boils at 470° F. forms sol^{uble} & crystal^{line} salts with alkalis. compound C²⁴H¹⁵O⁵. Med. Prop. Used as cloves with same effect a corrig^{ed} of mercuric. it relieves toothache somet^e. if introduced into the caried cavity. Dose from 2 to 6 drops. Med. Prop. of Cloves. Among the most stimulant, aromatic, relieves nausea, vomit^g, flatulence, excites languid digestⁿ. dose given to gr^{eat}. Infus. Car. bruised cloves 3ij. boil^d wat. 0j. mace 2 hours in a covered vessel & strain. affords precip^{itate} with lime wat. & the sol. salts of iron, zinc, lead, silver & antimony. dose ʒ 3ij.

Myristica.

Tree 30 ft. high. numerous branches & resembles the orange tree. leaves undulat^d obliquely serrat^d; bright green & glossy above, whit^e beneath aromatic taste. flowers male & female on diff^{erent} trees. the 1st in axill^{ary} pedunc^{les}; solitary clusters. the 2nd single axill^{ary} & solitary, both are pale yell^{ow}. The fruit mingl^{ed} with the flowers, round or oval, size of a peach, smooth surf^{ace} yell^{ow} when ripe & marked with a longit^{udinal} furrow. the external cover^{ing} at^{tached} thick & fleshy, abundant^{ly} in a nauseous stringy juice, dried, becomes coriaceous & separat^{es} in 2 valves from the apex. discloses a scarlet reticulat^d momb^{ent} call^{us} mace. closely investing a thin, brown, shin^g shell which contains the nutmeg. Native of the Moluccas & neighbouring isles. abounds in the Banda isles, is cultivated in Sumatra, Java, Penang, fde France & Bomb^{ay}. Ceylon & W. Islands. flowers at the 8th or 9th year & bears fruit & flower together. & continues thus 70 or 80 years. at 2 years growth a female branch is grafted on all young trees to produce early fruitfulness. it is grown from seed & in the Moluccas gives 3 crops a yr. fruit gather^d by hand, not to reject the mace separat^{ed} without break^{ing}. if possible flattened, dried in the Sun.

Pimenta

Tree 30ft high, trunk straight, much branch above, smooth, rayble foliage dense + ever v. w. l. leaves 4 inch, long elliptic-l. blunt, vein deep shin^g green. flowers small, unisexual at the ends of the branch. fruit a spherical berry crown^d with a persist^{nt} calyx, is smooth, shin^g blue or dark purple. the tree is frag^t espec^{ly} when in flower + gather^d before ripe & v. d. v. export^d in bags, casks &c. Prop. Size galy of a small pea, round, unribbed, umbilicate at the summit. brown^d broken they present cells v. in each a black hemispher^{ic} seed. frag^t od. resembl^d a mixtⁿ of cinnamon, cloves, + nutmeg. hence the name allspice. taste warm aromat^c, pung^t, + slightly astring^t. impart their flavour to wat. & all their virtues to aleoh. Infus. brown redd^{ish} thins paper affords a black precip^{itate} with the salt of iron, yield a volat oil by distillat. Decum^{us} Pin. The berries yield by distillat 1 to 4% oil. if fresh is colourless or yell^{ish}. long kept red. or brown^{ed}. odour + taste of Pimento warmer, + more pung^t. consists of a light + a heavy oil. separat^d by distill^{ing} with caustic potash the 1st comes over the 2^o remains with the potash. Dist^{ill} by sulph. ac. same use as other aromat^c oils dose 3 to 6 drops. Med Prop^s used more as a condit^{ment} than as a med. Warm aromat^c stimulat^r, an adjunct to tonics + purgat^{ives} cover^s their taste + rendering them more accept^{able} to the stom. partic^{ly} useful in flatulence. dose from grx to grxl. Spiritus Pin. bruise^d Pin. 5ij. Dilut^d Aleoh. Cong^s. wat Oj. mace^r the Pin + dil. Aleo. 24 hours, add the wat. + with a slow fire distill a gallon. dose 1 3j. to 1 5ij.

Cardamomum.

Scasatuberous horisont^{al} root with numerous fibres send^s up from 8 to 20 erect, smooth, shin^g green several stems 6 to 12 ft. high. heart alternate sheath^d leaves from 9 inch^{es} to 2 ft long from 1 to 5 inch^{es} broad point^{ed}, smooth, dark green above glossy pale sea green beneath, the flower stalk proceeds from the base of the stem, lies on the ground with the flow^{er} in form of a panicle. fruit a 3 cell^{ed} capsule contain^g numerous seeds grow wild after the removal of the under growth in the forests. yield fruit after the 4th year + bears for several years. the ripe capsules are pick^{ed}, dried over a gentle fire + separat^d from the foot stalk + adher^{ed} calyx by rubb^{ing} with the hands. Thus prepar^d they are 3 to 4 lines long. 3 to 4 thick. sided with round angles longitud^{inally} wrinkled. yell^{ish} white col. the seeds are small^{er}, irreg^{ular}, rough, brown, easily pulverizable + a rather separable from the capsules which though aromat^c are less so than the seeds + should be reject^{ed} when given in subst^{ance}. frag^t. Taste warm, pung^t, highly aromatic its prop. extract^{ed} by wat. + better by aleoh. the volat oil rises with wet in distillat. is colorless, agreeab^{ly} penetrat^{ing} odour, strong, aromat^c, burning, caustic, highly bitter taste. under goes change by keep^{ing} + even though it be excluded from the air, loses its od + taste. The seeds should be powd^{ered} only when wanted. Med Prop^s. a warm + grateful aromat^c less heat^{ed} + stimulat^r than many others a correct^{ive} of tonic + purgat^{ives} med. used in the Co. Ind. as a condit^{ment} + regard^{ed} almost as a necessary of life. Tinct. Card. Compos. Lond. Ed. Dub. Cardam. + Canaway powd^{er} aa. 3ij ss. lochineal powd^{er} 3j. bruise^d Cinnamon. 3v. Rainis 3v. Proof Spirit Oij (Imperial meas.) macerate 14 days + filter. Tinct Card. U.S. bruise^d Card. 3iv. Dilut^d Aleoh. Oij macerate 14 days. express, filter through paper. or thoroughly moist^{en} the powd^{er} Cardam. with dil. Aleoh. allow to stand 24 hours displace by dilut^d Aleoh + obtain 2 pints filt^{er} liquor. dose 1 3j. to 1 5ij an adjunct to tonic + purgat^{ives} infusions.

or sprinkl^d with salt wat. to preserve it. the fine red is lost by drying.
(2^o) Wing nuts expos^d to smoke, till the kern^l rattles in the shell. are broken the kern^l reserv^d & steep^d in a mixtⁿ of lime & wat. to preserve against worms, clean^d & pack^d for exportatⁿ. (The nuts are dried in the sun)
Prop^s: round^d or oval, mark^d with vernicul^r furrows, gray^{ish} hard, smooth to the touch, yie^d to the knife or grater though not very pulverulent. Cut or broken it presents a yell^{ish} surf^{ce} varieg^d with redd^{ish} brown, irreg^{lar} branch^d veins giving it a marbl^d appear^{ance}: these veins abound in oily matter upon which its med^{ullary} prop. depend^s & gives it a fragrant taste warm aromatic & grateful. Alcoh^{ol} & ether extract its virtues. Oleum Myrist: commonly call^d oil of mace is obtain^d by bruis^{ing} nutmegs, expos^{ing} them in a bag to the vap^{or} of wat, then compress^{ing} strongly between heat^d plates. A liquid oil flows out which solidifies on cool^{ing}: the yield is 10 to 12% is import^{ant} in stone jars from the E^{ast} is solid, soft, yell^{ish} or orange yell^{ish}. ± mottled, odor^{or} & taste nutmeg. an inferior qual from Holland is found in hard shin^y square cakes lighter col^{or} & less smell & taste than the E^{ast} Ind. An adul^t is made by mix^{ing} suet, palm oil, spermac^e wax or such like & flavour^d with the oil of nutmeg. The volatil^e oil is obtain^d by distillatⁿ with wat.
Mace is in the shape of flat irreg^{ular} membrane slit. smooth, soft, flexible, redd^{ish} or orange col^{or}. & taste of nutmeg. it consist^s of a small quant^{ity} of essent^{ial} oil, a fix^d oil odor^{or}ous yell^{ish}. sol^{uble} in ether, insol^{uble} in boil^{ing} alcoh^{ol}. another fix^d oil odor^{or}ous resid^{ue} in alcoh^{ol} & ether in every proport^{ion}: a gummy matt^{er} consist^{ing} of the whole mass & a small part of ligneous fibres. yie^{ld}s a volatil^e oil by distil^{lation}. & a fix^d oil by pressure. Inferior mace is brittle, whit^e or pale yell^{ish} little taste & smell.
Med^{ical} Prop^s in the quant^{ity} of 2 or 3℥ has produc^{ed} stupor & delirium & dangerous or even fatal results have come from its free use in India, used in combinat^{ion} as a corrigent. also as an agreeable addit^{ion} to articles of diet of farinaceous kinds and to diff^{erent} drinks in delicate stom^{ach} & languid appetite is giv^{en} in sub^{stance}. Mace is used for the same purposes as nutmeg. is rarely used. Nutmeg was unknown to the ancients.

Piper.

The pepper vine is perennial, round, woody, articulated stem; swell^d near the joints, from 8 to 12 ft long. leaves broad ovate, 7 nervⁱ-coriaceous, smooth, dark green. flowers small, whitish cov^d thickly a cylindrical spadix, red globular berries, grows wild in Cochⁱ-China & diff parts of India. is cultiv^d on the coast of Malab. in Malacca, Siam, Sumat, Java. Born. the Philip. & the plant is propagat^d by cuttings, is support^d by props or trees upon which it is train^d. it bears fruit in 3 or 4 years from the time of plant^g. gather^d before all are ripe, dried & turns black. white pepper is seldom used in U.S. the volat. oil ^{in the} ~~acid~~ concrete oil give the pecul^r taste to pep^r. ^{the} ~~the~~ volat. oil is limpid, colorless till by age, strong odor, less acid taste than pep^r consists of C¹⁰H¹⁸ & forms a liquid, but not a concrete comp^d with amoniac. the concrete oil or soft resin is green. Ned Prop^s: a warm carminative stimulat^g. produces g^d arterial exciton^t but act^s with great ^{medic^l} ^{activity} proportion^e energy on the part to which it is applied. It has been used since Hygieates as a cordial & med. used to excite a languid stom. & correct flatul^e. both pepper & piperin have been much used & lauded in intermitt^t particularly piperin but it is probably less active than the alcoh^l extract of pepper. in case of stomachs insuscept^{le} to quinia as in drunkards pep^r is a good adjuvant. dose of pepper from gr^v to gr^{xx} used in berberis more energetic in powder. piperin gr^v to gr^{viii}

Cubeba.

Cubebae are round, size of a small pea, black or gray^{ish} brown furnish^d with a short stalk continuous with raised veins run over the berry & embrace it like a network. hard shell, almost ligneous contain^g a single loose black^{ish} seed white and oleaginous within a weakly aromati^c. Eaten taste warm, bitter & camphor^l. leave a sensatⁿ of coolness in the mouth. like the oil of peppermint Oleum Cub. procured by distill^d with wat. the ground fruit of piper cubeba. 10 lb cubebae gave 5 oz oil. if pure is colourless. only is green^{ish} or yell^{ish}. smell of cub. warm, aromati^c. camph^l taste. consist^{ce} near that of Almond oil sp. gr. 0.929. exp^d to the air thickens without loss of its odor. compound C¹⁵H¹⁸. same effects as cub. may often be well substituted for the pure. given in syr. & water in form of emuls. or enclosed in capsules of gelatin. Ned Prop^s: gently stimulat^g with a spec^l direct to the urinary organs in large quant. excites circulatⁿ increases the natural heat. give headache & giddiness an augment^d flow of urine to which it gives a pecul. od. nausea & occasional purg^e are somet^e attend^{nt} upon its operation a sense of crininess in the rectum at the passage of the feces takes place. cubebae were unknown to the anc^t are much used in gonorrhoea. In India they have long been in use in gonorrh. fleet^d & as a stomatic & carminative in disorders of the digestive organs. They have when given in the early stage of gon. produc^d swell^d testicles. are most effectual where the inflammatory actⁿ is confin^d to the mucous memb^l of the urethra. if not speedily useful the should be ~~discontinued~~ continued. have been given in leucorrh. cystit^{is}. abscess of the prostate gland. piles, chron. bronchⁱal inflam^m. but in powd. dose in gonorr. 1 to 35. 3 or 4 times a day. for other affect^s the dose is somet^e red^d & to gr^x. Tinct. tub. bruise cub. 3iv. Dil^d Alech. Oij mace^l 14 days & exp^d. filter. or by displacem^t obtain^t Oij filt^d liquor

BLACK PEPPER.—PIPER. U. S.

Dried berries of *Piper nigrum*.

General character of this plant and place of growth. The berries deprived of their outer covering, constitute *white pepper*.

Constituents of black pepper, volatile oil, an acrid concrete oil, and a white crystalline principle called *piperin*, formerly thought to be the active principle, but now known to be inert when pure.

Therapeutical uses of black pepper.

CUBEBS.—CUBEBA. U. S.

Dried fruit of *Piper Cubeba*, growing in the East Indies.

Shape and size of Cubeba—colour and character of the surface—internal structure—odour—taste.

Active ingredient, a volatile oil, obtained by distillation. Sensible properties of the oil—consistence.

Effects of time and exposure on cubebs. The powder an improper form for keeping.

Medical properties, those of an aromatic and diuretic—effect on the urine—therapeutical applications.

Dose of the powder, ʒss. to ʒiiss. 3 or 4 times a day—of the volatile oil, 10 to 20 drops.

PIMENTO.—PIMENTA. U. S.

Berries of *Myrtus Pimenta*—a handsome tree growing in the West Indies, particularly in Jamaica, and hence called *Jamaica pepper*.

Size, shape, and sensible properties. Origin of the name of *allspice*.

Active properties supposed to reside in a volatile and fixed oil. Colour of the volatile oil. Dose of the oil, 3 to 6 drops.

CARDAMOM.—CARDAMOMUM. U. S.

Fruit of *Alpinia Cardamomum*—a plant growing in Malabar.

Shape and size of the fruit—colour—relative virtues of the capsule and seeds—the former rejected in powdering—odour—taste—relations to water and alcohol. The virtues of the medicine reside in a volatile oil. It should be kept in capsules, not powdered.

Much used as an addition to other medicines, particularly infusions, in the proportion of one or two drachms to the pint. Enters into numerous officinal preparations.

Compound tincture of cardamom, one of the most agreeable aromatic preparations. Dose, fʒj.

FENNEL-SEED.—FENICULUM. U. S.

Seeds of *Anethum Feniculum*—a perennial herb—native of Europe—cultivated in this country. The whole plant possessed of aromatic properties.

Shape and size of the seeds—colour—relations to water and alcohol.

Volatile oil—*Oleum Feniculi*—mode in which obtained—colour—specific gravity.

Infusion prepared in the proportion of two drachms to a pint.—Dose of the oil, from 5 to 15 drops.

Other Aromatic Seeds, less used.

CARAWAY—CARUM, U. S., from *Carum Carui*;

CORIANDER—CORIANDRUM, U. S., from *Coriandrum sativum*; and

ANISE—ANISUM, U. S., from *Pimpinella Anisum*.

These are used in the same way, and for the same purposes, as the preceding. The oil of caraway is occasionally used in a dose varying from 1 to 10 drops.

An aromatic fruit called *star aniseed*, derived from *Illicium anisatum* of China, is often substituted for the true aniseed.

LAVENDER.—LAVANDULA. U. S.

Flowering spikes of *Lavandula vera*—a native of the South of Europe, but cultivated in our gardens.

Their virtues reside in a volatile oil, which is separated by distillation, and used as a perfume. Dissolved in alcohol, it forms *spirit of lavender*. Uses.

Compound spirit of lavender—preparation—uses—Dose, fʒss. to fʒj.

ROSEMARY.—ROSMARINUS. U. S.

Tops of *Rosmarinus officinalis*—a shrub growing on the shores of the Mediterranean.

Their virtues reside in a volatile oil, which is separated by distillation, and is colourless. The spirit of rosemary and the volatile oil are officinal.—Chiefly used as external remedies.

PEPPERMINT.—*MENTHA PIPERITA*. U. S.

Whole herb official—native of Europe—cultivated and naturalized in this country.

Description of the plant—sensible properties—relations to water and alcohol.

Volatile oil—mode in which it is prepared—colour, odour, and taste—specific gravity—adulteration with alcohol—mode of detecting the adulteration.

Uses as a remedy, internal and external. The infusion made in the proportion of from two to four drachms to a pint.—Dose of the oil, 1 to 3 drops—mode of administering it.

Tincture of Oil of Peppermint—commonly called *Essence of peppermint*. Mode of preparing it.—Dose, 10 to 20 drops.

Peppermint water.—*Aqua Mentha Piperita*, U. S.—Mode of preparing it—uses.

SPEARMINT.—*MENTHA VIRIDIS*. U. S.

Common mint—a native of Europe—cultivated and naturalized here. How distinguished from the former species. In nature, properties, and uses, closely allied to it. Preparations the same, and given in the same dose.

Other herbaceous Aromatics.

PENNYROYAL.—*HEDEOMA*. U. S. Botanically *Hedeoma pulegioides*—an indigenous herb—wholly different from the European pennyroyal, which is the *Mentha Pulegium*, and is not used here. In virtues, medical applications, and pharmaceutical treatment, similar to the preceding plants.

BALM.—*MELISSA*. U. S. Botanically *Melissa officinalis*—an herbaceous plant—native of the south of Europe—cultivated in the United States. When fresh, aromatic—scarcely so when dried—used in infusion as drink in fevers.

ORIGANUM. Botanically *Origanum vulgare*. Common marjoram. Indigenous in Europe and the United States. Possessed of the usual aromatic properties, which reside in a volatile oil. The plant little used. The oil chiefly employed as an external application.

PARTRIDGE-BERRY.—*GAULTHERIA*. U. S. Botanically *Gaultheria procumbens*—an evergreen, indigenous plant. All parts aromatic—virtues in a volatile oil, which is separated by distillation. Heaviest of the volatile oils. Used to impart flavour. An ingredient in the syrup of sarsaparilla of the United States Pharmacopœia.

GINGER.—*ZINGIBER*. U. S.

Root of *Zingiber officinale*—an herbaceous perennial—indigenous in the East Indies—cultivated in the West Indies.

Character of the recent root—mode of preparing it for market—commercial varieties. Distinguishing characters of the *black* and *white* or *Jamaica* ginger.

Odour of ginger—taste—relations to water and alcohol—effects of time and exposure.

Chief ingredients, volatile oil, an acrid resin, extractive matter, and starch. Virtues in the first two.

Medical uses, internal and external.

Employed in powder, infusion, tincture, and syrup. Dose of the powder, 10 to 30 grains—of the infusion, made in the proportion of an ounce to a pint, fʒij.—of the tincture, fʒj. or fʒij. The syrup used chiefly for its flavour.

SWEET FLAG.—*CALAMUS*. U. S.

Root of *Acorus Calamus*—an indigenous plant, growing also in Europe and Asia.

Character of the root—state in which it is kept in the shops—sensible properties—virtues in a volatile oil.

Uses, modes of administration, and doses, similar to those of ginger.

4. *Mineral Tonics.*IRON.—*FERRUM*. U. S.

Relative importance. In the red globules of the blood. Its preparations closely analogous in medical effects. Unites tonic and astringent properties. Employed chiefly in reference to the former.

Perceptible effects. In small doses, improves the appetite—promotes digestion—favors more complete chylicification, thus rendering the stools less frequent and more solid—renders the blood redder and more coagulable—invigorates the whole nutritive process—renders the pulse rather more frequent and firmer, and increases general warmth—said to act as an astringent on the portal circle and spleen—causes black stools.

Influence on the nervous system—not immediate like that of quinia, but gradual—possibly through increased organic actions.

Tendency to the uterine system.

Long used, induces a plethoric state with tendency to inflammations and hemorrhage.

Mentha Piperita.

A perennial herbaceous plant, erect root, quadrang^l channel somewhat hairy stem branch towards the top 2 ft high. leaves opposite serrate point^d smoother above than below. dark green paler beneath. flowers small, purple disposed in terminal blue spikes. a native of Great Britain, is largely cultivated in some parts of the U.S. for its volat. oil. to maintain its flavour it should be transplanted every 3 years. for med. use cut it in dry weather about the time of the expansion of the flower. it then appears in August. Prop. both fresh & dried has a peculiar penetrat^d & grateful odour. taste arom^{at}, warm, pung^t, glowing, camphor^d, bitter^d, attend^d with a sensat. of coolness when the air is admitt^d into the mouth. purg^s its virtues, to wat^r & more readily to Alech. Oilum Menthae Piperitae is obtained by distillat. with wat^r. green^d yell. or nearly colourless, becomes red^d with age. Odour strong & arom^{at}. taste warm, camph^r very pung^t succeed^d by a sensat. of coolness on the admission of air to the mouth. upon long stand^g deposits a Stearstone of the same comp^s as the oil $C^{11}H^{20}O^2$ stimulat^d & carminative. used in flatul^{ce} nausea, spasmodic pains of the stom^{ach} & bowels, a corrigent & adjunct to other med. dose gtj to gtijj. rub^d up with sugar & dissolv^d in wat^r. is often used in the form of Essence of peppermint. by dissolv^g \mathcal{E} ij in a pint of Alech. dose gt x or gt xx on a lump of sugar this is officinally Tinct. Olei Menthae Piperitae. Aqua Menthae Piperitae. Take oil of peppermint \mathcal{E} ss. Carbonate of magnesia \mathcal{E} ss. distill^d water Oii. Rub the oil of peppermint with the Carb. of mag. graduall^y add the wat^r. & filter through paper. The two mint wat^r & cinnamon wat^r. are in the U.S. used almost to the exclusion of all others, they conceal the bad taste of other med^s & prevent their nauseat^d prop^s. Med. Prop. the same as the oil. Tinct & wat^r. applied over the epigastrium in the form of fresh leaved herbs allays sick stomach & is especially useful in the cholera of children.

Mentha Viridis.

Differs from the former in hav^g sessile, lanceolate, naked leaves, elongat^d pinnicled spikes, &c. &c. native of Europe cultivat^d in the U.S. for domestic use & for the oil. flowers in August. should be gathered for med. use in dry weather just as the flowers appear. if for oil after they are expand^d. odour strong & arom^{at}. taste warm & slightly bitter, less pung^t than peppermint succeed^d by some as more agreeable than peppermint. These prop^s depend on the volat. oil which rises by distillat. with wat^r. & is impart^d to wat^r & Alech. by macerat. The acid $C^8H^8O^2$. Hoedeoma indigenous annual plant 9 to 15 inches high root fibrous & yell^d. leaves rough & prominently veined beneath. flowers pale blue. frequently dry pastures &c. if abund^{ant} scents the air about. has a pleas^{ant} arom^{at}. smell & a warm, mintlike taste. imparts readily its virt^{ue} to boil^d wat^r. the volat. oil on which they depend is separat^d in distillat. & used instead of the plant. Med. Prop. scatte^d stimulat^d carminat. given in flatul^{ce}, sick stom^{ach}. promotes like the arom^{at}. herbs giv^g in warm infus. perspirat^d. excite^s the mens^{tr} flux if the syst^{em} is predispos^d. consequently given as an emmenagogue. In recent suppres^s of mens^{tr} give a large dose of the tea at bedtime preceded by a hot footbath.

write to 3 of the oxyg. of the air & form 1 equiv. of sesquioxide. The correspond^g 2 equiv. of iodine convert 4 equiv. of protoxide into 2 of sesquioxide
thus $6 \text{ Fe I} + 3 \text{ O} = 2 \text{ Fe}^2 \text{ I}^3 + \text{Fe}^2 \text{ O}^3$. The solutⁿ may be partial^y protect^d by plac^g a coil of iron wire in the bottle contain^g it, as
if iron is sesquiox^{id} & deposit^d the liberat^d iodine is recover^d into protoxide by the protect^d wire. Iodine of iron is incompat^{ible} with
alkalies & their carbonates & all the incompat^{ible} of sulph^{ur} of iron. Med Prop. Tonic, alterative, diuretic & emmenag^{ic}. sharpens the appetite
& promotes digestion, & occasional^y acts as a laxative & diuretic. after several days use its const^{ant} use is found in the urine when it does not act
in the bowels it augments the urine, it use blacken the stools & lessen their fetor. used in scorbut^{ic} swell^{ings} of the cervic^{le}
glands, visceral obstruct^{ions} with difficult act^{ion}, chloro^{tic} anaem^{ia} & leuc^{em}ia. in Obstinate syphilitic ulcers, in secondary syphil^{is}
of solid^{ities} & ser^{ous} subjects should not be given in pills on account of its proneness to decomp^{ose}. Quinqu^{er} Ferri Iodidi, Iodine 3ii. Iron
fil^l 3i. Prepar^d honey 5v. Dist^{ill} wat. Q.S. mix the fer^{ri} with wat^{er} dist^{ill} 5x. in a pure or glass vessel, gradually add the filings con
stantly stirring heat gently til the liq^{ue} is light green. add the honey yet a little & filter. pour the dist^{ill} wat^{er} on the filter &
let it pass till all the fil^l liq^{ue} measures 5xxx. shut it in air tight bottles. Prop. transpar^{ent} pale green liquid little or no sediment.
by add^{ing} sulph^{ur} ac. it turns brown & if heat gives violet vapors a free iod^{ine} is detect^{ed} in it by starch. Med Prop. used for m^{en}stru^{al} enemata
inject^{ed} for the vagina, solution for ulcers in the proposit^{ion} of 3i or 3ii of the salt to ʒj wat. dose of solutⁿ ʒt^h XXX to ʒt^h LXXX suffic^{ient}
dilat^{ed} in wat^{er} the mouth should be carefully wash^{ed} after each dose to prevent injury to the teeth. residuals in head & feet
liq. ferri Iodidi 5iii, aquosum
limit op^{er}ation 7ii ʒj 3liij
in a day

Ferrocyanurictum Ferri, Sulph^{ur} of iron 5iv. sulph^{ur} ac. 5iijss. Nitric ac. 53vi or Q.S. Ferrocyanide of Pot^{ash} 5ivss. Wat^{er} ʒiiij.
Dissolve the sulph^{ur} of iron in a pint of wat^{er} & have add^{ed} the sulph^{ur} ac. boil the solutⁿ pour in the nitric ac. in small port^{ions}. allow^{ed}
to boil for 2 min^{utes} after each add^{ition}. till it no longer produces a dark col^{or}. allow^{ed} to cool. Dissolve the Ferroc^{yanide} of Pot^{ash} in the residue in wat^{er}.
& add this to the 1st liq^{ue} as it add^{ed} after each add^{ition} pour it on a filter. wash the precip^{itate} with boi^l wat^{er}. till the wash^{ings} are tasteless
lastly dry it & rub it to powder. It is the pure prussian blue. Prop. Tasteless in dilu^{ted} water & alcohol. rich deep blue col^{or}. insol^{uble} in dilute
acids sol^{uble} in strong sulph^{ur} ac. though not decompos^{ed} form a white part^{ic}ular mass from which wat^{er} precip^{itates} it. decompos^{ed} by fumi^{ny} nitric
ac. & by conc^{ent} nitric ac. burns slowly in contact with a red hot body heat^{ed} a residue of sesquioxide of iron. Med Prop. tonic
febrifuge & alterative is good for child^{ren}. in remitt^{ent} & intermitt^{ent} fevers from the small dose a little tasteless irritat^{ion} & thank^s in facial neur
algia of protect^d nature appl^{ied} to bad ulcers in shape of ointment. dose for adult ʒiij to ʒv several times a day. Ferri Acetas, not
used in the U.S. Prep. Carb^{on} of iron 1 part. Acet^{ic} ac. 6 parts. Digest 3 days & filter. The solutⁿ is deep red. acid & strong chalybe^{ate} taste dose ʒi to
Ferrium Ammoniatum, subcarb^{onate} of iron 3iij. Muriat^{ic} ac. 53x. Muriate of ammonia ʒiijss. Dist^{ill} wat. ʒiij. mix the subcarb^{onate} in the
mur^{ic} ac. in a glass vessel & digest 2 hours. Dissolve the muriate of am^{monia} in the dist^{ill} wat^{er} & add this to the 1st mix^{ture} fil^{ter} & evaporate to dryness rub to
powd^{er}. Prop. yell^{ow} crys^{talline} grains. febrile odors. sharp styptic saline taste sol^{uble} in wat^{er} & white alcoh^{ol}. incompat^{ible} with the alkalies & is
deliquescent. Med Prop. it unites a pericent^{ric} prop^{er} to those of chalybe^{ate} guly. used in anaem^{ia} & ep^{ilepsy} & scro^{fula}. recte twice dose ʒi in pill. solutⁿ solutⁿ
Ferri Lactas, Ferment whey by keep it at 70 or 80 by which it is charg^{ed} with lactic ac. evapor^{ate} to 5 its bulk, decant & filter, then saturate
with milk of lime the lactic ac. is now lactate of lime which remains in solutⁿ & the overp^{er} a precip^{itate} of phosphate of lime. the liq^{ue} is again
fil^{ter} & precip^{itate} by oxalic ac. precip^{itate} of oxalate of lime & free^{ly} the lactic ac. filter & digest with the fil^l solutⁿ iron fil^l on a sand bath at
a gentle heat after 6 or 8 hours let it boil then filter, concentrate evap^{orate} crystal^{ize}. wash them with alcohol dry quick^{ly} & shut them in air tight bott^{les}
is insubstant^{ial} crys^{talline} plates is very effective in chlorosis with or without anaem^{ia} dose ʒi 2grs to ʒi 20grs a day. given in large of 1ʒi rectate to 12grs
sugar in pill 1gr lat. equal weight of inert mucilage of p^{owd}er & honey Q.S. in 2grs as follows. lact^{ic} 3i. white sug^{ar} 5xiijss. boi^l dist^{ill} wat^{er} 5iijss

Nelisse. a perennial root send^g up annually a erect quadrang^r stem 1 or 2 ft. high. flowers white or yell^d. now grows wild in the U.S. gathered just before flower^g in July. when fresh has odour of lemons. dried it loses its frag^r. taste austere & arom^t. contains a yell^d or red^d ^{essent^l} oil, Vanillin, bitter extract^{ve} & gum. has little remed^l effect upon the syst. the infus is a good drink in febrile complaints & warm promotes the effects of diaphoret^{ic} medic^l.
Oreganum. A perennial herb. erect purplish downy quadrang^r stem 18 inch^l high. somewhat hairy leaves of dark yell^d green col^r. flow^{rs} numerous, pink purple or rose col^r. grows along fences & in dry stony fields flowers from June to Oct. the oil is ppt^d import^d. may be obt^d by distillatⁿ. is yell^d if over heat^d in distillatⁿ is red^d as also by age.

Gaultheria. A small indigenous evergreen with a long creep^r horiz^l root, send^g up at intervals 1 or 2 erect slender round, red^d stem 4 to 6 inch^l high, naked below, leafy above, leaves ovate, coriaceous, shin^g bright green above, paler beneath flowers 3 to 5 per stem on droop^g peduncles are white. fruit, a bright scarlet berry, grows in mountain tracks dry barrens, sandy plains & partly beneath the shade of other evergreens as the Kalmia & Rhododend^r each known as partly berry, deer berry, tea berry, winter green, mountain tea. flowers from May to Sept. the leaves only are offic^l. arom^t & taste resembl^g sweet birch. a mark^g act^g depend^g on tannin. volat^l oil distill^d by wat^r is known only in the U.S. is prep^d in N. Jersey from the whole plant. nearly colourless oil is brown yell^d. or red^d. sweet^l, slightly pung^l. peculiar taste of an agreeable & characterist^{ic} odour. Sp. gr. 1.173. boil^g pt 412. ^{the heaviest of the water is} its weight is a test of its purity. Med Prop. Stimul^t & act^g used in chronic diarr^h as an emmenag^{ic} to increase the secretion of milk also a corrig^e of other med. The oil in the dose of f ʒi has caused death on post mortem exam. inflamed stom^{ach} has been found.

Zingiber.

A biennial or perennial creep^r root. annual stem 2 or 3 ft high. solid round erect enclosed in an imbricat^d membrane sheath. leaves smooth 5 or 6 inch^l long. 11 broad the flower stalk rises by the side of the stem from 6 inch^l to 1 ft high. is without leaves & ends in an obtuse imbricat^d spike. flowers dingy yell. aromatic. 2 or 3 at a time. the fruit stems are slightly frag^r. The root is offic^l. is dug up when a year old. after the stems have wither^d clean^l scald^d to prevent germinatⁿ & dried rapidly. this is the black ginger or East Ind. ginger. The white or Jam^{bo} is prepar^d by select^g the best roots, remov^g the Epid^{is} & dry^g separately and carefully in the sun is sent to England & its appear^{ance} further improv^d from thence import^d here. it is the most sature^d. The young & tender roots depriv^d of Epid^{is} is preserv^d. The recent root is 1 to 4 inch^l long. somewhat flattened knotty, irreg^l branch or lobed. light ash col^r. with circular rugae. & internall^y is fleshy & yell^d white. soon^l germinates when kept in shops the common or blue zingib^{er} has a dark ash col^r which Epid^{is} exhibit^s when remov^d patches almost black apparently the result of exposure. beneath the Epid^{is} is a brownish almost horny cartil^g part. the interior is whi^t & farinaceous. powder is light yell^d brown. is the most used in the U. S. The Jam^{bo} is white or yell^d white the Epid^{is} being remov^d pieces are rounder & thinner. powder beautiful yell^d white which is brought from Liverpool in jars. is firm & resinous it is bleachi^d so as to render it whiter throughout. Prop^r odour arom^t & penetr^t taste spicy, not pung^l & biting. These prop^{ties} disappear by expos^{ure} wat^r & alcohol. etc. its virt^{ue} contains a great blue volat^l oil. a resin^{ous} mat^{ter}. soft. acid. arom^t oil. in addition a sub resin insol. in ether. gum. starch. sulphur. acet^{ic}. a acct^{ic} of potassa lignin &c. fibrous. light & friable or worn into pieces should be reject^d. Med Prop. A grateful stimul^t & comminative

Trinet. Ferri Chloride. Take subcarbonate of iron 16 ss. Muriat. ac. Oj . Alcohol Oij . Pour the acid on the subcarb. shake the mixt. occasion^l for 3 days. set it by that the dregs may subside if there be any then pour off the liquid & add to it the alcohol. It consist of sesquioxide of iron with a variable but always small prop^{ty} of carb. of protine. Act^{on} by muriat. acid is dissolv^d with effervescence. carb. ac. & soap & a solutⁿ of the sesquichloride with a little protochlor^{ide} is obtain^d. On expos^{ure} the protochlor^{ide} is by the absorptⁿ of oxyg. is chang^d into sesquichlor^{ide} & sesquioxide the latter being precip^{it} ind^{ist} there be an excess of Muriat. ac. present. Prop. redd^{ish} brown, somewhat yell^{ish}. sour & very styptic taste, odor of muriatic ether. The sesquichloride of iron result^s from its evap^r is a dark orange deliquescent compnd. The trinet is decompos^d by the alkali^s alkaline earths. & thin carbonates, ask^{ing} veget. infusⁿ the mucilage of gum arabic which produces a brown semitranspar^{ent} jelly with it. Med Prop. one of the most active & certain prep^s of iron, acceptable to the stom. used where the chalybeates are call^d for. recom^{end}ed as tonic in scroph^{ic} diuretic & influences the urin^{ary} passages, hence used in gleet, polygonorrh^{oea}, slow^{ly} dose gtx every 10 minutes until effect is experience^d in injury befor^e on spasm^{ed} strict^{ure} of the urethra and in passive hemorrh. of the uterus kidneys & bladder, external^{ly} used to destroy venereal wart, a styptic in cancerous & fungus ulcers dose Mxx to Mxxx may be grad^{ually} increas^d to ℥ 3j to ℥ 5ij . 2 or 3 times a day. It is given dilut^d with wat.

Ferri et Potassae Tartaras. Take subcarb. of iron ℥ 3ij . Muriat. ac. ℥ 3x . Solutⁿ of Potassa Oxiss. Bitartrate of Potassa ℥ vii ss . Distill^d wat. Cong^{ss}. Mix the subcarb. with the muriat. ac. & digest 2 hours then pour it in cong^{ss} of distill^d wat. set it by then pour off the supernat^l liquor. Add the solutⁿ of Potassa. wash the precip^{it} with wat. & while yet moist mix it with the bitartrate of Potassa & a gall. Distill^d wat. keep the mixt at 140° for 30 hours frequently stir^{ring}. filter the solutⁿ & evap^r to dryness by a wat. bath at same temperat^{ure}. Process of the U.S. Pharmacop^{oeia} $3\text{KO} + \text{Fe}^2\text{Cl}^3 = 3\text{KCl} + \text{Fe}^2\text{O}$. Prop. dark brown, held to the light is ruby red sol. in 4 parts wat at 60° . gives dark brown sol. taste feebly chalybeate, when pure is neutral to test paper at common temp. yields no precip^{it} with potassa, soda or ammoniac. Ferrocyan^{ide} of potass^{ium} blues it only on the additⁿ of an acid. Incompat^{ible} with ask^{ing} veget. infusⁿ. Compositⁿ requires tartaric acid of sesquioxide of iron & 1 of tartaric acid of Potassa. Med Prop. on agreeab^{ly} chalybe^{ic} from its slight taste & ready solub^{ility} is one of the best forms for children. given in solutⁿ or combin^d with an aromatic or bitter in form of bales.

Ferri Phosphas. Sulph. of iron ℥ vi . Phosph. of soda ℥ vi . Wat Cong^{ss}. Dissolve the sulph. of iron & Phos. of soda each in Oij Wat. mix the sol^s & set by that the pond. may subside. pour off the supernat^l liquor. Wash the phos. of iron with hot wat & dry it by a gentle heat. The sulph. ac. comb^{ines} with the soda, stay^s in solutⁿ as sulph. of soda. The phos. ac. unit^{es} with the protine of iron fall^s as phos. of iron. at 1st the precip^{it} is white soon turns the^{re} white by absor^{ption} of oxyg. powd. bright slate colored. Med Prop. gen^l prop^{ty} of ferugin^{ous} prep^s is given with advantage in anæm^{ia} & some forms of dyspepsia.

Ferri Iodidum. Iodine ℥ iij . Iron fil^l ℥ 3j . Distill^d wat Oj ss . Mix the iod. with Oj distill^d wat. in a porcelain glass vessel or small^{ly} add the iron fil^l stir^{ring} constant^{ly}. heat gently til it turns light green filter & when it has pass^d pour upon the fil^l ℥ ss Boil^d Distill^d wat. let it pass then wrap the fil^l ^{fine} up at 212° in an iron vessel. to dryness shut it in a closely stopp^d bottle. Prop. a green^{ish} black cryst. subst. very deliquescent of styptic & chalybeate taste. its solutⁿ with the least possible contact with air gives transpa^{rent} green. Tabular cryst^s fuses at a moderate heat & on cool^{ing} is an opaque cryst. mass in gray col with metallic lustre. at a high temp. emits violet col vapors. sol in wat & alcohol. solutⁿ is pale green. is very liable to undergo spontane^{ous} decomposition by absor^{ption} of oxyg. turn^s orange red. The follow^{ing} take place 2 equiv^s of protiodide of iron are decompos^d. The 2 equiv^s of iron

given in dyspepsia flatulencies debility of the aliment^l canal attend^d on atonic gout. a good addition bitter infusion. & tonic provid-
chard^l produces irritatⁿ of the mouth & a copious flow of saliva. if sniff^d excites violent sneezing. a local remedy in relaxatⁿ
of the urethra & parosis of the tongue & gapes. rationally appl^d. is a rubefacient. Sinec. Ling. bruised ginger^l v. iij.
Alecⁿ. Oij macerate 14 days, express & filter through paper or moisten well with dil. aloe. stand 24 hours. Displace &
obtain 2 pint^s. of the add to Rony's purg^{ve} infusion & mixtⁿ in debilit^d aliment^l canal ppl^d. used in the 11th to prepare syrup of ging.

Calamus.

Has a perennial, horizontal joint, somewhat compressed root. 2 to 1 inch thick, often several ft. long, send^s off numerous round &
yell^l or whit^l fibres at its base & bunches of brown fibres exceed^g coarse horse hair from its joints. Internally is whit^l
& spry, exten^l whit^l with a tinge of green. variegat^d with Ricin^l shades of light brown & rose col. leaves are radical, sheath^d at
the base, long sword shape, smooth, green above but wid^l variegat^d with green & white near their origin. flower stem like the leaf
but longer send^s out near its middle a gl^lid spadix 2 inch^l long. 10 per^l at each end & round with green & yell^l flowers
fruit an oblong capsular divid^d in 3 cells contain^g numerous small seed^s. found in low swampy places, flowers in
May & June. collect^d late in autumn or in spring. are wash^d freed from fibres, & dried - does not taste improv^l by dry^g. Prop
various lengths. flattened wrink^l. yell^l brown. numerous white spots beneath indicate^d the fibrous insertⁿ. texture
light & spry. Internal^l white or yell^l white. break short & rough. is somewhat found de^lad^d. odour strong & frag^l. Taste
warm bit^l. pung^l & aromat^l. is deteriorat^d by keep^g & attack^d by worms yield^s its virtues to boil^l wat^r. Med Prop stimulat^l
Tonic. used in pain or weakness of the bowels arises from flat^l. an adjunct to tonics & purg^{ve}. in debility or torpor of the alim-
entary canal. was known to the anc^l. that oil yell^l. becomes red. Jussu 3 to Oj boil^l wat^r. dose a wineglassful or more.

Ferrium.

Is the most abundant of metals is found in the mineral, vegetable & animal kingdoms & is one of the few metals deriv^d
of deleterious action on the animal economy from occurs. 1^o Native. 2^o Sulphuretted form^l magnetic & cubic pyrites. 3^o Oxid^l
embrac^g magnetic, specular, red, brown, martellaceous oxides. 4^o Double combination form^l or borate, sulphate, phosphate,
arsenate & nitrate of iron. The same ones include the native oxides & carbonates. (sparry iron). The best known is from the mag-
netic & specular iron ores. Extraction. The ore is roast^d & pulver^l. then exposed to strong heat in contact with the carbonac^l
mat^l as charcoal or coke & in connexion with some flux capable of fusing with the impurities of the
laccous clo^l. with the calcareous ores & forms with them slag while the carbonac^l mat^l act^s on the oxide
of iron reduces it to the metal^l state. The slag is allowed to run off by a hole in the side of the furnace
while the ^{reduced} metal passes met^l by the bottom into a caudular mould & solidifies in pigs. it is further
purified & brought to be malleable iron by fusion with a current of air actⁿ on its surf. thus the iron decompos^d
ore is reduc^d the impurities form a slag the carbon is burnt out. finally as it purifies more & more it solidifies
though the temperat^r has not chang^d. the metal is then taken out beaten or press^d together by powerful hammers
or rollers & finally drawn into bars to form the malleable iron of commerce. Prop. Hard, malleable ductile
& tenacious. gray white. f. brown test. a slight styptic taste & a sensible odour when rub^d. sp. gr. 7.7. fusing point^l
is very high. possesses magnetic & welding properties. at white heat it burns in the air with brill^l scintillatⁿ

Pilulae Ferri Carbonatis. Sulphate of iron 3iv. Carbonate of soda 3v. Clarified Honey 3ij ss. Syrup, boil in a water bath. Dissolve the sul. of iron & carb. of soda each in a pint of ^{the} water & to each solut. add a fluid ounce of Syrup, then mix the 2 solut. in a bottle just large enough to contain them stop it air tight & set it by till the carbonate of iron subsides. Pour off the supernat. liquid, wash the precip. with warm water, sweeten with Syrup in the proportion of ʒ 3j. syr. to ʒj water. mix the washings loose their saline taste, place it upon a flannel cloth, express as much of the water as possible & mix immediately with the Honey. lastly heat the mixt. in a water bath until it attains a pilular consistence. Prop. Is in the form of a soft pilular mass of a uniform black colour & strong ferruginous taste. is sol^{ble} in acids - contains $\frac{1}{2}$ its weight of carb. of potash of iron. Med. Prop. is admirably adapted to cases where ferruginous prep^s are demanded as in chlorosis amenorrhoea & other female complaints & acts by increasing the colour & matter of the blood. injects more fully the capillary system & reddens the lips, for the alterative effects of iron it is superior to any other prep^s of iron. its good merits are its unchangeableness & its solubility in acids. given in divided doses of gr x to ʒ 2xxx per day for a month or 8 weeks if improvement takes place. The mass being undivided it is necessary for the prescriber to indicate the weight of each pill.

Ferri Sulphas. Take from wire cut in pieces 3xii. Sulph. ac. 3xviii. water Congj. mix the Sulph. ac & water & add the iron, heat the mixt. till effervescence ceases. pour off the solut. add 3ss sulph. ac. filter through paper allow the lower end of the funnel to touch the bottom of the receiving vessel. Evaporate in a matrass till sufficiently concentrated, set it by in a covered vessel to crystallize. drain the crystals in a funnel dry them on bibulous paper & stop them in air tight bottles. is manufactured on the large scale under the name of green vitriol or copperas for the arts from the native sulphuret of iron or pyrites by roasting, oxidat. by expos. to air & moist. & lixiviat. the consist^g of the mineral become sulph. acs protae of iron, which by unit^g form the salt in quest. Composit. $\text{FeO}, \text{SO}_3 + 7\text{H}_2\text{O}$. Prop. in the form of transparent crystals, pale blue green, shape oblique rhombic prism, disagreeable styptic taste & an acid react. On expos^g to air they absorb oxygen & become green & are afterward covered by a yell. sub-sulph. of the sesquioxide insol in water. ʒj in sol in alcohol. sol in twice its weight of cold & $\frac{3}{4}$ its weight of boiling water. The aqueous solut. is blue green, by stand^g attracts oxygen turns green then reddish deposit a part of sub-sulphate. Moderately heat it loses ʒj of its water of crystallization, on greater heat it loses its acid & becomes anhydrous sesquioxide of iron called elcothar. Incompat with the alkalis & their carbonates, the chlorides of calcium & barium, borate & phosphate of soda, nitrate of silver, acetate & subacet of lead is decomposed by acting veget. infus^s, the tannic & gallic acids of which form with the sesquioxide if any be present a black compound like ink. The pure salt is precip^{it} white by ferrocyanuret of potassium, impure gives a blue precip. copper is detect^{ed} by dipping in the solut. a bright piece of iron on which a film deposits. Med. Prop. acting as tonic, large doses produce nausea, vomit^g & gripes of bowels & long continued injures the stomach. Used in the scrophulous diathesis conjoin^{ed} with extract of bark. used as an astringent in passive hemorrh^g, colic quatuor sweats, diabetes, chronic mucous catarrh, leucorrhoea, gleet &c. as tonic in dyspepsia & debility after protracted disease. in amenorrhoea with deficient action or with the fetid & stercoraceous genus. Solut. external used in chronic ophthalmia, leucorrhoea & gleet of ʒ 1 or 2 to ʒ 8 or 10 gr. salt to ʒ 3j Water the water must be previously boiled to expel air. dose in pills ʒ 5 gr. of hist. Ser. comp. page 15
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in oxygen. At red heat it is convert^d into black oxide. at ordin^y temperat. air & damp form with it the hydrated sesquioxide or rust. It combines with all the non metallic bodies except hydrog. & nitrogen & with most of the metals. equivalent = 28. Iron combin^d with minute port of carb. forms steel. a prepⁿ of iron ~~not~~ said aside. Iron is readily deoxid^d by bring^g it to the state of a sesquioxide in solution & treating it with ferrocyanuret of potassium or tinct. of galls. the 1st will strike deep blue the latter a black col.

Med Props. Its prep^s are powerfully tonic, increase^d the pulse, promote secret. increases the colour-matter of the blood, useful in diseases characteriz^d by debility & relaxatⁿ of the nervⁱ fibres & languid circulatⁿ. more especially when the consequences of inordinate discharges. used in chlorosis, hysteria, fluor albus, gleet, scrofula, rickets, chorea & all passive hemorrhages. Chalybeates are used in palsy after inflammatory excitⁿ has subsid^d. Iron is contraindicat^d in all inflammatory diseases by product^g heat, thirst, headache, difficult breathing & other sympt^s of over excit^d circulatⁿ.

Syrup of lactate of iron continued. rub the salt to powder with 4 times its weight of sugar & dissolve the mix^t quickly in ^{the} part^l water. pour the soln in a matrix put on a sand bath & add the remain^g sug. which when dissolv^d filter when cold put in air tight bottle & se 2 to 4 fl 3 slight amber col. Ferri Citras. Saturate a dil^d soln. of cryst^l citric ac. in an = weight wat with moist hydrat^d sesquioxide of iron. when cold is filt^d & diluted so as to be = to 4 times the weight of the ac. employ^d is then spread on glass & dried in thin brill^t goldⁿ red layers. uncrystallizable sol. in wat. Taste acid & not unpleasant. dose grv or more several times a day. best given in pill. is a chalybeate & used as the other prep^s of iron.

Ferri Roamenta Iron for pharmaceutical purposes should be of the purest kind the Pharmacop^{oe} therefore direct it to be kept in the form of iron wire of the softest & most malleable iron for internal exhibitⁿ & for some prep^s it requires to be finely subdivid^d hence iron filings are also official. Iron in its uncombined state has no action on the animal economy hence iron fil^l would be inert should they meet wth acid or any other agent in the stomach where by they are oxidiz^d. This combinatⁿ is prov^d by the black stools to which they invariably give rise are g^ol^d obtain^d from the workshops of blacksmiths, but are g^ol^d impure & unfit for use as they cannot be purif^d by the magnet the impur^s being frequently drawn on with the good part. The best plan is to file a piece of pure iron with a clean file. Administ^r with molasses or in pill with some bitter extract or in clieckney with honey. The prep^s of iron are prefer^d to this mode.

Squamae Oxydi ferri. Obtain^d from iron heat^d to redness, subject^d to the blows of a hammer or an anvil, the heat causes the iron to be cov^d with a thin coat of oxide which is detach^d in flakes. They are found abund^{nt} in blacksmiths shops consist of small, black, brittle masses attract^d by the magnet, without taste or smell, pow^d dull gray^{ish} white. The inner & outer layers are of diff^{erent} compos^{ition}, the 1st more uniform = beginⁿg of protoxide to one of sesquioxide, the outer of a variable mixtⁿ of these two oxides, the sesquioxide predominat^{ing} in the surf^{ace} & diminish^{ing} gradually inwards. They must be reduc^d to fine pow^d before being used. The Dub^{ois} college calls this pow^d Ferri Oxidum nigrum.

Ferri Rubigo. Take of iron wire any quantity cut it into pieces, expose it to the air moisten^d with wat^r until it is convert^d into rust. Rub this in an iron mortar, separate the finest dust by the affusion of water & dry it from rust is reduc^d to an impalpable pow^d by levigatⁿ & elutriatⁿ, then form^d in small conic^{al} masses like prepared chalk. (H. C. Berzelius) a hydrated sesquioxide of iron frequently contain^s a little carbonate of protoxide. It is form^d by the decomp^{osition} of water the oxygⁿ of which convert^s the iron fil^l into sesquioxide & partly into protoxide which absorbs carb^{on}ic ac^{id} from the air. Pow^d redd^{ish} slightly styptic taste, is less soluble in acids than the subcarbonate, its med^{ical} prop^{erties} are much the same while it is a much less elig^{ible} prep^{aration} has been expung^d from the U.S. Pharmacop^{oeia}.

Ferri Subcarbonas. Take sulphate of iron 3viij. Carbonate of Soda 3ix. Boil^d wat^r Congi. Dissolve the sulph^{ate} of iron & carb^{on}ic soda severally in Oiv of the wat^r mix the sol^{utions} & hav^{ing} stirr^d the mixtⁿ set it by that the pow^d may subside, pour off the supernatant liqu^{or}, wash the subcarb^{onate} of iron with hot wat^r wrap it in bibulous paper & dry it with a gentle heat. the actⁿ of the sol^{utions} produces a precip^{itate} of a pale blue col^{our} which is a hydrat^{ed} carb^{onate} of protoxide of iron & sulph^{ate} of soda remains in solut^{ion}. In wash^{ing} or dry^{ing} it loses nearly all its carb^{on}ic ac^{id} so as nearly to become sesquioxide. Prop^{erties} redd^{ish} brown, disagreeable, slightly styptic taste, insol^{uble} in wat^r, sol^{uble} in muriat^{ic} ac^{id} with slight effervesc^{ence} of carb^{on}ic ac^{id}. After precip^{itation} by ammonia which throws down the sesquioxide of iron, the supernatant liqu^{or} should indicate the presence of no other metal in solut^{ion} is incompat^{ible} with acids & acidulous salts. Med^{ical} Prop^{erties} Tonic, alterative & emmenagogue employ^d where the prep^s of iron are g^ol^d applicable. used in Cancer in neuralgia it is particularly useful. in chorea, chlorosis &c. where the blood is deficient in colour^{ed} matter in traumatic tetanus in the 2^d stage of whooping cough. Tonic dose gr v to gr xxx in pill or pow^d 3 times a day. in retical chorea & tetanus 1 to 2 teaspoonfuls daily in the dose is not requisite, slight nausea or weight at the stom^{ach} being only its disagreeable effect. The hydrat^{ed} oxide or magma is an antidote to arsen^{ic} ac^{id} but until it can be obtain^d the subcarb^{onate} can be used.

Used in dyspepsia without inflammation, and in all complaints consequent upon or sustained by debility of stomach. Also in chronic diseases of general debility, and particularly when associated with disorders of menstruation. In amenorrhœa when not attended with excitement. In deficient sanguification. In various nervous affections, as neuralgia and epilepsy.

Acts probably through the medium of the circulation.

Numerous preparations—unnecessarily multiplied.

Uncombined iron not destitute of activity. Possibly oxidized in the stomach. Used in the form of *filings*—*ramenta ferri*. Mode of purifying. Dose, 5 to 20 grains.

Scales of iron—*squamæ ferri*. Mode of preparing—chemical nature—mode of purifying—colour of the powder—mode of preparing the powder—dose, 5 to 20 grains.

Rust of iron. *Rubigo ferri*. Mode of preparing—chemical nature—colour—taste—in-solubility in water. Uses and dose the same as those of the following.

Subcarbonate of Iron.—*Ferri Subcarbonas*, U. S. Formerly called *Precipitated carbonate of iron*. Mode of preparing—chemical changes and nature. Form—colour—taste—smell—insolubility in water—partial solubility in water with carbonic acid. One of the best chalybeates. Mild and effectual. Dose, 5 to 20 grains, in pill or powder—in neuralgic cases, from ʒss. to ʒj. three times a day and gradually increased.

Protocarbonate of Iron.—*Vallet's Ferruginous Pills*.—*Pilule Ferri Carbonatis*, U. S. Mode of preparing—chemical composition—influence of saccharine matter in their preservation. Advantages over other chalybeates. Dose.

Sulphate of Iron.—*Ferri Sulphas*, U. S.—*Green vitriol*—in commerce *copperas*. Mode of preparing—chemical nature—colour of crystals—taste—effects of exposure—solubility in water—insolubility in alcohol—effects of exposure on the solution—effects of heat—colour and form of the dried sulphate. Incompatibles. Medical uses. Unsafe in large doses—effects of over doses. Dose of the crystallized, from 1 to 5 grains—of the dried, from $\frac{1}{2}$ grain to 3 grains, 3 or 4 times a day. If given in pills, the dried preferred—reason of this. *Compound mixture of iron* (*Mistura Ferri Composita*, U. S.). Uses.

Tincture of Chloride of Iron.—*Tinctura Ferri Chloridi*, U. S. Mode of preparing—chemical nature—form—colour—odour—taste—incompatibles—medical uses. Dose, 10 to 30 minims, 3 or 4 times a day.

Tartrate of Iron and Potassa.—*Ferri et Potassæ Tartras*, U. S. Mode of preparing—chemical nature—form—colour—taste. Solubility in water—effects of exposure. A mild chalybeate. Dose, 10 to 30 grains. *Tartrate of Iron and Ammonia* has been used.

Phosphate of Iron.—*Ferri Phosphas*, U. S. Mode of preparing—chemical nature—form—colour—insolubility in water—medical uses. Dose, 5 to 10 grains.

Iodide of Iron.—*Ferri Iodidum*. Mode of preparing. Used in a solid form and in solution. Latter usually preferred. Official under the name of *Liquor Ferri Iodidi*, U. S. Effects of exposure on solution, and mode of obviating. Particular application. Dose, in substance, 2 to 5 grains. Dose of solution, 15 to 40 drops.

Besides these chalybeates, the *Ferrocyanuret of iron*, *Acetate of iron*, *Ammoniated iron*, *Tartrate of iron*, *Lactate of iron*, and *Citrate of iron*, are sometimes used.

COPPER.—CUPRUM. U. S.

In small quantities, the preparations of copper have little sensible effect on the system. It may be inferred, from their effects in disease, that they exercise a general tonic influence, which is extended especially to the nervous system. In larger quantities they act as poisons. It is probable that, in this case, their action is local, consisting, according to the amount taken, of irritation, inflammation, or disorganization of the part acted on. It is doubtful whether they can be introduced into the system by way of absorption in quantities large enough to prove greatly detrimental, without producing at the same time dangerous or fatal local disorganization. Hence, in the administration of copper, it is necessary to guard chiefly against inflammation of the stomach and bowels.

It is not certainly determined whether copper, in the metallic state, has any influence on the system. Cases are recorded in which little or no injury has resulted—others in which it has proved detrimental. It is probable that, in the latter cases, it was oxidized, or formed saline combinations in the stomach.

Poisonous effects from copper vessels in cookery—from mineral-water fountains.

The following preparations are official in this country.

Sulphate of Copper.—*Cupri Sulphas*, U. S.—*Blue vitriol*. Mode of preparation—character of the crystals—colour—effects of exposure—chemical nature—solubility in water—insolubility in alcohol—colour of the solution—taste—effects of heat—incompatibles.

Effects in moderate doses on the system—on the stomach—poisonous effects—appearance on dissection—treatment—antidote—therapeutical application, both internally and externally.

Dose, one quarter of a grain, 2, 3, or 4 times a day, gradually increased, and omitted or reduced when irritation of stomach is occasioned. Given in pill.

Ammoniated Copper.—*Cuprum Ammoniatum, U. S.* Mode of preparation—phenomena and rationale of the process—chemical nature—colour—odour—taste—solubility in water—incompatibles.

Therapeutical applications. Dose, half a grain twice a day, gradually increased.

ZINC.—ZINCUM. U. S.

The preparations of zinc are mild tonics, thought to have an especial direction to the nervous system. They are similar to the preparations of copper, but much less energetic.

Zinc in the metallic state is inactive.

Sulphate of Zinc.—*Zinci Sulphas, U. S.*—*White vitriol.* Mode of preparing—chemical composition—shape and colour of the crystals—taste—solubility in water and alcohol—effects of exposure—effects of heat—incompatibles.

Effects on the system and on the stomach—effects of over doses. Therapeutical applications, internal and external. Dose as a tonic, from half a grain to 2 grains, in pill or solution. As a local application, used in solutions, containing, when applied to mucous surfaces, from 1 to 2 grains to the fluidounce—when to cutaneous eruptions, from 5 to 10 grains—when to ulcers, in order to change the action of their surface, from 10 to 20 grains.

With acetate of lead as an external application—proportions, 2 grains of sulphate and 3 grains of acetate to fʒj. of water—chemical changes. *Acetate of zinc* sometimes used in the pure state—1 or 2 grains to fʒj. of water.

Oxide of Zinc.—*Zinci Oxidum, U. S.* Mode of preparation—form—colour—odour—taste—relations to water and alcohol—effects on exposure.

Therapeutical applications, internal and external. Dose, 5 grains. Ointment official under the name of *Unguentum Zinci Oxidi, U. S.* Uses.

Impure Oxide of Zinc.—*Tutty—Tutia.* Used in the form of ointment.

Carbonate of Zinc.—*Zinci Carbonas, U. S.*—*Calamine.* Source—preparation—chemical nature—form—colour—taste—relation to water. Used externally in the form of cerate—*Turner's cerate (Ceratum Zinci Carbonatis, U. S.).* Applications.

BISMUTH.—BISMUTHUM. U. S.

Sub-nitrate of Bismuth.—*Bismuthi Subnitras, U. S.*—*White oxide of bismuth.*—*Magistery of Bismuth.* Mode of preparation—chemical nature—form—colour—taste—smell—effects on the system—local effects of over doses. Therapeutical applications—effect on the stools. Dose, 3 to 10 grains in powder or pill.

SILVER.—ARGENTUM. U. S.

Nitrate of Silver.—*Argenti Nitras, U. S.*—*Lunar caustic.* Mode of preparing it—chemical nature—forms in which it is kept in the shops—consistence—colour—fracture—solubility in water and alcohol—taste of the diluted solution—effects of light—effects of heat—incompatibles—influence of common salt.

Effects on the system—effects on the stomach—poisonous effects—proofs of absorption—effects on the skin—explanation—effects when externally applied. Therapeutical applications.

Dose, an eighth of a grain, 3 times a day, gradually increased to 3 or 4 grains. Caution necessary. Given in pill. Mode of preparing the pill—treatment in cases of over doses—antidote.

Chloride of silver and *oxide of silver* have been substituted for the nitrate.

Several preparations of gold have been used, but not generally adopted. Complaints to which they have been applied.

SULPHURIC ACID.—ACIDUM SULPHURICUM. U. S.

Formerly oil of vitriol. Not used in its concentrated state. Incompatibles.

Effects on the system. In small doses sufficiently diluted, increases the appetite, promotes digestion, and acts at the same time as a general astringent and refrigerant. Larger doses occasion uneasiness or pain in the stomach—still larger, inflammation or disorganization. Concentrated, a violent corrosive poison. Mode of treatment and antidotes.

Remedial applications, internal and external. Used in the following forms.

Diluted Sulphuric Acid.—*Acidum Sulphuricum Dilutum, U. S.* Preparation—sensible properties—much diluted when taken—swallowed through a quill. Dose, 10 to 30 drops, 3 times a day, or more frequently, in fʒiij. or fʒiv. of plain or sweetened water.

Aromatic Sulphuric Acid.—*Acidum Sulphuricum Aromaticum, U. S.*—*Elixir of vitriol.* Preparation—colour—odour—taste. More used than the preceding. Dose and mode of administration the same.

Ointment of Sulphuric Acid. Made in the proportion of ʒj. of acid to ʒj. of lard. Mutual decomposition. Applied in scabies and other eruptions.

Cuprum.

Is not efficient in the metallic state, exists pp^{ts} as native copper, an oxide, a sulphuret or a salt. The pp^{ts} salt are the sulphate, carbonate, arseniate & phosphate. Prop^{ty} is inert, somewhat poisonous, red, very ductile, malleable & sometimes nauseous taste, smells bad when rubbed, granular texture, frach. hackly, sp. gr. 8.89, fuses at 1996° F. It is inert, is poisonous in combination, exists in the healthy body in primary & secondary products, produces a coppery taste in the mouth, nausea, vomit, & violent pain in stomach & bowels, frequent black & bloody stools, small irregular sharp & frequent pulse, faint & burning thirst, difficult to eat, cold sweats, paroxysms of urine, violent headache, cramps, convulsions & death. The white of eggs dissolved in water in large & repeated doses is a good antidote, if they cannot be had mixed by warm water with oil by tickling the throat if these do not succeed, use the stomach pump for medical examination find the viscera in distilled water in a filter, subject to dryness, or fume by nitric acid, the matter that remains contains the copper. Cupri Sulphas exists sometimes in solution in the water flowing through copper mines by which these waters the salt is obtained in a mode of preparation to roast the native sulphuret in a covered iron furnace, about 2 days it becomes a sulphate, it is then dissolved in water & evaporated & crystals obtained by either of these modes it contains a little sulphur, excess of arsenic by adding an excess of protox of copper the iron is precipitated & precipitate wet sheets of copper sprinkle with sulphur, heat to redness for some time & plunge into water, while hot, repeat the operation till the sheets are entirely corroded, the sulphur is formed, which by the act of the air & heat becomes a sulphate, this is dissolved in water & crystallized by evaporation & obtained as a by product of silver & gold. The alloy is dissolved in sulphuric acid, copper plates are immersed in the solution, the sulphur of silver decant, sulphur of copper & the silver is precipitated. Prop^{ty} rich deep blue color taste strong metallic, slightly acidulous, veget. tincture, crystals large, transparent, rhomboidal prisms, effloresce slightly in the air in some specimens it is a deep solution in 4 parts cold & 2 hot water, heat it melts in its water of crystallization, dissolves in strong white sulfuric acid, it undergoes no change in a deep solution in aqua regia, its acid, heat & protox of copper is decomposed by arsenic, soda & ammoniac, by alkali carbonates, by borax, acids & subacet. of lead, action of iron, nitrate & silver corrosive chloride of mercury, Verriale of potassium chloride of calcium, by all veget. substances, infusion consists of 10 grains sulphuric acid, 1 protox of copper & water.

Med Prop. in small doses is astringent & tonic, in large ones a purgative & emetic given as a tonic in intermittent fevers, & after some other Symptomatic
as an emetic for discharging poisons from the skin, reject opium, also in compound rhubarb in solid external as a stimulant to ulcers, an astringent
for deturgescing purious granules & call edges a styptic to bleed surf. as a wash for chancres, in weak solution in combination is a good conjunctive in chronic
ophthalmia. 8gr with weight, American bole, 2gr camphor or 2 pint of cold water is an excellent collyrium as a stimulant for cataracts 2gr to 10 drachms 2 to 5gr.
as a stimulant wash 2 to 4 gr to 6 3j wat. great caution should be taken in its administration. (The stern on dissection after death by the poison of
ectop. app. is highly inflamed being charged with solution
The white of eggs is an excellent emollient.)

Cuprum Ammoniatum, Sulph. of Copper 5ss. Carbonate of ammon. 3vi. rub them together in a glass mortar till effervescence ceases. then wrap the ammoniat^d copp^r in bibul^l paper & dry by a gentle heat. keep in well stopp'd glass bottles for use. A reack takes place the wat^r of crys^l of the sulph. of copp^r is extract^d the mass is moist & carb. ac. gass escapes from the carbonate (sequi carb^l) of ammonia from light blue the mass becomes deep azure. The precise nature of these changes is unknown. One view is that the blue whicl^l gives a part of its ac to the ammonⁱ of the carb^l form a sulph^t of copp^r & sulph^t of ammonⁱ which are mixt^d or chemical^d cou^d together. Accord^g to Phillips the sulph^r of the sulph^t of copp^r unites with the ammonⁱ of a part of the sequi carb^l of ammonⁱ while the carb^l ac. of the later partly escapes & partly combines with the oxide of copp^r the result becom^g sulph^t of ammonⁱ carb^l of copp^r & undecompos^d sequi carb^l of ammonⁱ. Prop^r deep azure blue, a strong ammonⁱ odor, a styptic metallic taste, sol in wat^r but unless there be an excess of sequi carb^l of ammonⁱ the solutⁿ if much dilut^d deposits sub sulph^t of copp^r. The solutⁿ has an alkali^l reack on veget^l colors. Exposed to air it part^s with ammonⁱ & is convert^d into sulph^t of ammonⁱ & carb^l of copp^r this occurs ind^{ly}. keep it in light bottles. Potassa, soda, lime wat^r & the acids are incompat^l. Arsenⁱ ac. precip^s a green arsenite of copp^r from its solutⁿ. Med^l Prop^r is antispasmodⁱ used in epilepsy, chorea, husiness, worms as injectⁿ in gonorrh^l & leucorrh^l. poison^d in over dose. dose is increas^d to 4 or 5 gr. a day shall not be used more than a month without interm^{pt}.

Zincum.

Occurs in nature as a sulphuret call blende & as a carbonate or silicate call calamine from which it is easily extract^d. The alame is roas^d; & mixed with charcoal powder then heat^d in iron cylinders placed horizon^l over a furnace. As the rednet commences iron receivers are placed at the open^d of the cyl. to receive the volat^l metal as it condenses. It is then melt^d & run into moulds & forms speltke or the impure zinc of commerce. & must be redistill^d to be pure. Prop^r bluish white, peach taste & a percept^{le} odor if rub^d. is soft. Sp. gr. 7.1. boils at red heat tak^d fire in open vessels.

Zinci Sulphus. Zinc in small pieces 3iv. Sulp^a ac 3vi. Distill^d wat^a Div. introduce the zinc & wat^a in a glass vessel add by degrees sulp^a ac. when effervesc^{ce} ceases filter through paper, boil down till a pellicle begins to form, set by to crystallize consists of 1quint. Sulp^a ac. 1oz. of zinc. 7 1/2 wat^a. Prop^r. a colorless, transp^a salt. disagree^{le} metall^l; styptic taste a 4 sided prismat^l crystal. Terminal^l by 2 sided pyramids, resemble much sulp^a of magnesia, in mistake for which it is somet^e taken. Effloresces slightly in dry air, though heat^d compact, it redens veget^l blues, insol. in alcoh. sol. in vin^a & its weight of color is less than its weight boil^d wat^a. heat^d it dissolves in its wat^a of cryst^l which evaporat^l & the heat continu^d all the ac. is expell^d leav^g 1oz. of zinc & compar^l to the same as for sulp^a of Copper. The white vitriol of commerce is in irreg. opaq. masses resemble^l lump Sugar has occasional yell. stains occasion^d by the presence of sesquiox^{ide} of iron, is less sol. than the pure salt, contain^g only 3 quint. Wat^a.

Med Prop. is tonic & astring^l & in large doses a prompt emetic, in over doses a poison as a tonic in debility attend^d with irritation being less heat^d than sulp^a of iron, is used advant^l enough in dyspeps^{ia} in dose of 1/2 gr. several times a day, unless speedy benefit result, it should be set aside. It is used alone or comb^d with cinch. or quinia in obstin^t intermitt^l to internal use is ppl^l in spasmod^{ic} diseases, comb^d with camphor or Myrrh in spasmod^{ic} cough or affect of the chest with m^ult^l secret^l.

The solut^l. calom^l as a styptic. The follow^g is an excell^t inject^l in obstin^t chron^{ic} dysent^{ry} of the lower part of the bowels, also in gonorrh^{ea}.

Wat ^a .	1 3iv.
Sulp ^a of Zinc	gr. viii.
Laudanum.	gt. xxx.

 The sol. is useful as a coll^l in ophthal^{ia} a gargle in ulcerat^l sore throat. In nasal polypⁱ appl^y by lint or by inject^l in the proport^l of ʒij to ʒij of the sol^l to ʒvii Wat^a. Tonic dose to 2 gr. now used as emetic only to dislodge poisons dose x to xxx gr. for hoop^l cough of child^l 1/2 to 1 gr. 2 or 3 times a day. The white vit^l of commerce should not be used.

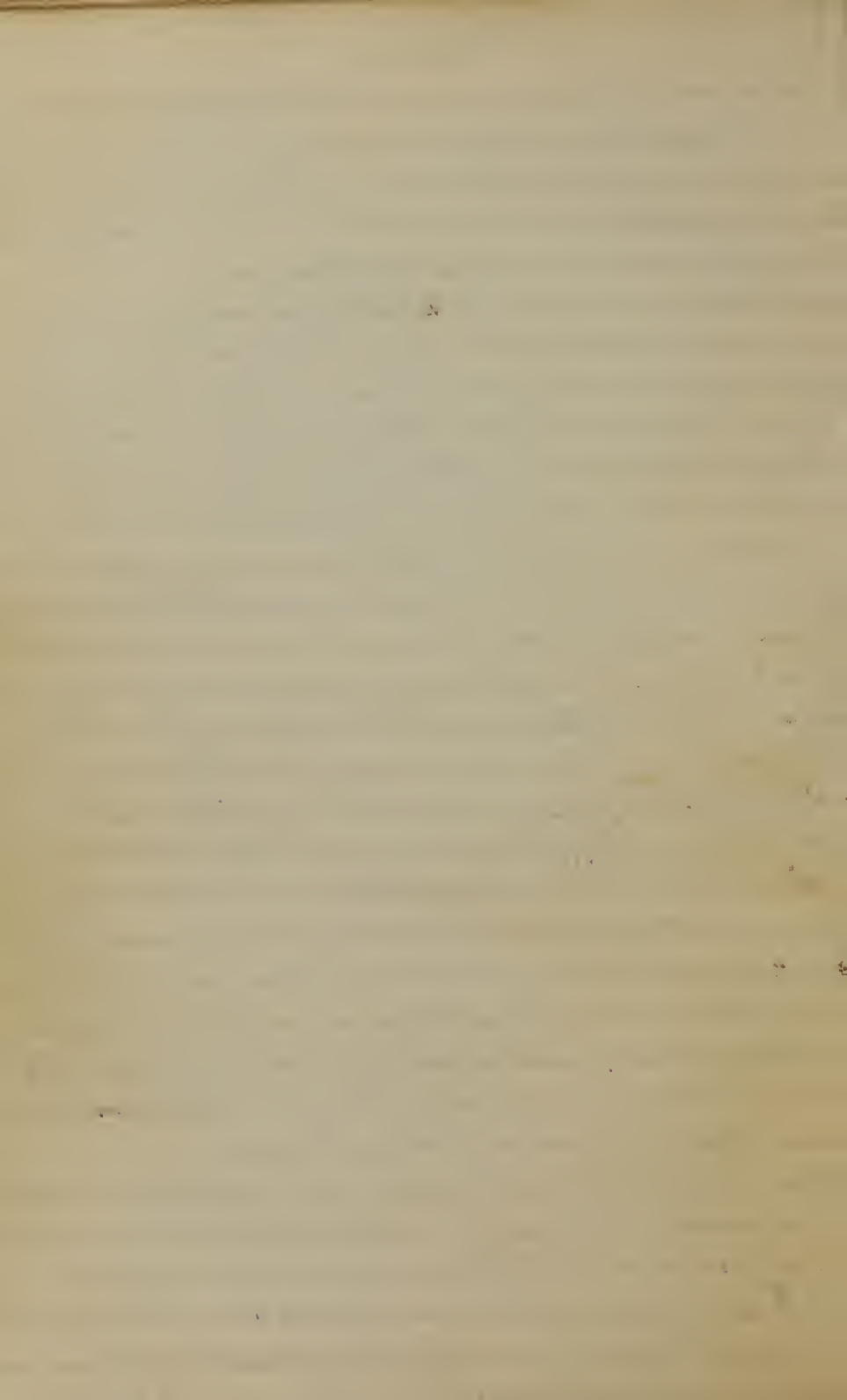
Zinci Acetatis in hexagon^l plates, efflo^{res} in dry air sol. in wat^a & in rectif^d spirit^l. taste, astring^l metall^l & disagree^{le}. It is used as an external applicat^l only, as an astring^l coll^l in ophthal^{ia} as an inject^l in gonorrh^{ea} after the acute stage has pass^d.

Zinci Oxidum. Sulp^a of Zinc 6j. Carb^l of timon^l 3vss. Distill^d Wat^a (long. iii). dissolve the sulp^a & carb. separat^l in Oxii Wat^a strain & mix. wash well the precip^l with wat^a & drive off the ea^l & ac. by a strong heat. Prop^r. inodor^l tasteless, white powd^r. insol. in wat^a & alcoh. sol. in acids, in potassa, soda & ammon^{ia} & not in their carb^l. by exposure it

Med Prop. Tonic & antispasmod^{ic} used in chor^{ea}, epileps^{ia}, hoop^l cough, Spasmod^{ic} of stom^{ach} dep^l in dyspeps^{ia} &c. External^l as an astring^l to excoriat^l surf^l. to such cases however the Ang. Zin. Oxid. is g^l u^l 2 gr. of Zinc 3j. Laud^l 3vi. mix them. Used in sore nipples &c.

Tutia is used for the same purposes as the Zin. Oxid^l. it has no advantages over it & is dirty & no longer officinal.

Zinci Carbonas. found in nature in Germany & Engl^l. in compact masses of dull appear^l can be scratch^d with a knife, somet^e is crystal^l. gray; gray; yell. red^d yell. or impure brown or brown yell. The cryst^l variety contains 1quint. Carb^l ac. & 1 part 100 of Zinc. The comp^l & earthy vari^l cont^l 1 quint. of Wat^a. The Tri. Preparatus is obt^l by tak^g Carb^l of 2 a convenient quant^l heat^d to redness & pulveriz^d then reduce to a fine powd^r as direct^d for preparat^l Chalk page 68 used as an astring^l & to make the cerate. 10 lb of powd^r pink^l.



Ceratum Zinci Carbonatis. Prepⁿ Carb. of Zinc $\frac{1}{2}$ lb. wax a. a. to ss. hard to ij. Melt the lead & wax together & as they thicken on coal add the Carb. & stir untill cool. is mildly astring^t & is much used in excoriat^o superficial ulcerat^o, burns & c. & c.

Bismuthum.

Is not used as a medicine in the pure metallic state. is pp^t found in Saxony, also in Cornwall & in the state of Connecticut.

Bismuthi Subnitrici. Bismuth in fragm^{ts} 3j. Nitric ac. $\frac{1}{2}$ lb. ss. Distill^d Wat. Q. S. mix a f 3 of distill^d wat. with the ac. & dissolve the bismth in the mix^{ture} when the solutⁿ is complete, pour the clear liquor in Distill^d Wat. Dij. & set by till the powd. subsides. pour off the supernat^l liq. wash the submt. of Bismuth with distill^d wat. wrap in bibulous paper, dry by a gentle heat. Composit^o. require nit. acid. 3 pro^{ps} of bismuth. tasteless, invol^u. pure white, heavy powd. slight^l sol. in wat. very sol. in strong ac^{id} from which wat. precip^{itates} it.

Med. Prop. Tonic & antispasmod^{ic}. used in epileps^y, palpitation of the heart, cardialgia, pyrosis, gastrodynia & c. dose 5 to 15 gr 2 or 3 times a day. it blackens the stools. this is caus^{ed} by its find^{ing} hydrog^{en} sulph. ac. gas in the stom & intest^{ines}. It is import^{ant} not to confound this with the effect produc^{ed} by disord^{er} liver as a suspens^{ion} of the med^{icine} & a teast for the latter complaint. would much retard the cure of the patient. In over dose it produces great gastric distress, nausea, vomit^{ing}, diarr^{hoea} or constipat^{ion}, colic, heat in the breast, slight rigors, vertigo & drowsiness. The remedies are bland & mucilag^{inous} drinks or in case of inflam^{mation} leech^{es} or venesection. ^{formulated} emul^{sion}.

Argentum.

Is not used as a med. in the pure metal^{lic} state. the richest mines are in Mexico & Peru. it is found at Hovgberg in Norway, in Hungary & c.

Argentum Nitrat^{um}. Silver in small pieces 3j. Nitric ac. $\frac{1}{2}$ lb. v. Distill^d Wat $\frac{1}{2}$ lb. mix the ac. & the wat. (in the 2nd mix^{ture}) dissolve the silver on a sand bath grad^{ually} increase the heat so to dry the result^{ing} salt. Melt this in a crucible over a gentle fire & continue heat^{ing} till ebull^{ition} ceases then pour into moulds. It is an anhydrous salt. composed of 1 equiv. nit. ac. & 10 p^{er} cent of silver.

Prop. is a white salt of intensely metall^{ic} bitter taste in the form of hard brittle sticks at first white afterwards gray. becom^{es} ± dark by expos^{ure} to light & probably is affect^{ed} by organic matter or sulph^{ur} hydros^{ulphur} contain^{ed} in the air in cons^{equ} of which it is decomp^{osed} & the metal precip^{itates} in minute part^{icles} on the surf. The fract^{ure} is crystal^{line} with radiat^{ed} surf. sol. in its weight of cold wat. in 4 parts of alcoh. its solutⁿ stains the skin indelible black. fuses at 426°. is decomp^{osed} at 600° with evol^{ution} of oxyg^{en} & nitrous ac. & reduct^{ion} of the metal. Through accid^{ent} it is apt to impurities as free silv. nitrates of lead & copp^{er} & through fraud nitrates of potassium. Incomp^{at} with almost all spring & river wat. caus^{ed} by the presence of ± common salt with sol. chlorides, with sulph^{ur} hydrosulph^{ur}, mucilag^{inous}, tartar^{ic} ac^{ids} & their salts, with alkali^{es} & their carb^{onates}. Fine wat^{er} is astring^{ent} veget^{al} infus^{ions} it is decomp^{osed} by common salts an insol^{uble} chloride of silv. is form^{ed}.

Med. Prop. Tonic & antispasmod^{ic}. used in chore^a, epileps^y, angina pectoris & c. in over dose it acts as a corrosive poison. common salt is the best antidote. an object to its use is the disord^{er} it produc^{es} by it of the skin produc^{ing} blue or black stains which can hardly be remov^{ed}. this is explain^{ed} by its being absorb^{ed} & carried partly to the heart mucosum is there decomp^{osed} by the light the silv. being precipitat^{ed}. External^{ly} used as a vesicant. Stimul^{ant} & escharot^{ic}. used to cure mercur^{ial} ulcers in prop^{ortion} of gr ss to Wat $\frac{1}{2}$ lb. & to stimul^{ate} ulcers in the prop^{ortion} of 1 to 5 gr to Wat $\frac{1}{2}$ lb. & as inject^{ions} to fistul^{ar} sores. A sol^{ution} of gr ii to 1 lb. wat. is excell^{ent} in op^{thalm} with ulcerat^{ion} of cornea, in fistul^{ar} discharges of the ear, spongy gums & c. apply it with a camel^{hair} penicil.

3j to 1 lb. Wat. is a escharot^{ic} sol. but is great^{ly} used sol^{id} as an escharot^{ic}. thus used to destroy shriek^s of luneth^{ren}, warts fungous flesh in fist^{ulous} chanures & c. a topical remedy in syphilis in leuc^{orrhea} & gonorrh^{oea} of women. also in gonorrh^{oea} of the male but its use is dangerous. used to canterize small pus pustules on the 1st & 2nd day of erupt^{ion}. The pill should be made with some

Acidum Nitromuriaticum.

Take Nitric ac. ℥℥iv. Muriat. ac. ℥℥viii. mix in a glass vessel & when effervesc^{ce} ceases put it in an air tight glass bottle in a cool dark place. When mixed they mutual^{ly} decompose each other. the hydrog. of the muriat. ac. with the oxyg. of the nitric ac. forms wat. the nit. ac. becom^s nitrous ac. & chlorine is set free, after the react. therefore we have a solut. of nitrous ac. & chlorine in wat. It is very liable to decomposition, by heat it is apt to loose its chlorine or have it convert^d by light into muriat. ac. in conseq^{ce} of the decompⁿ. of wat. That kept in shops is wont^s so weak as not to dissolve gold leaf. Their strength may however be immediately restored by add^g sulph. ac. which concentrates them by its superior attractⁿ for wat. immediate action ensues & chlorine is evolved. Prop. golden yell. emits the smell of chlorine, dissolves gold & from thence the name of aqua regia of early chemists. it dissolves platinum. Need Prop. an external remedy in hepatitis. thus used it produces a tingling sensat. in the skin, thirst, a pecul^r taste in the mouth, some^{wh} soreness of gums & plentiful ptyalism stimulat^s the liver. used by spong^e or in form of bath. when used with the sponge dilute so as to have an acidity of strong vinegar. when by bath use 3 quills of wat. to ℥℥vi of acid. in a deep narrow woodⁿ tub. discard metal^l or marble bath^r.

Chlorine Water. is prepar^d by saturat^d wat. with pure chlorine. a bottle of woulfe's apparatus is best adapt^d to its prep. it has a pale yell^l green col. actung^l taste & the odor of chlorine. it destroys veget. col. decompos^d by light. Used in affect^s of the liver, scarlat^a malignant sore throat. a gargle in putrid sore throat. its uses are much the same as nit. mur. ac. dose 1 to 4 ℥℥ properly diluted. Inhaling gaseous chlor. in minute & dilut^d doses. caution is necessary chlorine being a poison^s gas & breathⁿ in consid^{er} quant^y produces blood spit^t violent pains & even death.

veget. powd. and mucilage, in poison^d doses subseq^t inflammat. must be combat^d by bleed^g & local & other anti-phlogistic measures. Argent. Chloridum, add comon salt to a sol. of nitrate of silv. so long as it precip. its use is the same as the nitrate dose gr iij or more 4 or 5 times a day. If of doubtful therapeutic value is inevitably form^d when the nitrate is given internally. Argent. Oxidum, to obtain it conveniently add absol. of caustic potassa in excess to one of nitrate of silv. carefully wash & dry the precip. & keep from air & light. ^{an} Olive brown powd. is propos^d as a substitute to the nitrate, possess^g its qual^{ty} with being ischarotic, or discolour^g the skin. used in nausea, cardialgia, pyrosis &c. dysent^{ry} diarrh^{ea}, night sweats dysmenorrh^{ea}, menorrhagia, leuc^{orrh}ea, sequel^{ae} of uter^{ine} attend^{ed} with flood^g &c. exercises a pecul^{iar} control over uterine fluxes. Tonic medic^{ines} are someti^m necessary after its good effects have been produc^d. it someti^m salivates & produces sore gums it is especial^{ly} useful in chron. inflam^m of the mucous memb. of the stom. dose gr ss. 2 or 3 times a day in pill, an drink^g of gr v. to gr x to land 3j. is used for venereal sores & introduced on a wash borage into the urethra in gonorrh^{ea}. gold has been ppl^d used in second^{ary} syphilis, syphilitic ulcerat^{ed} sore of lab. leprous eruptions &c. its preparations are however \pm poisons & gold has lost its reputation.

Acidum Sulphuricum.

Is incompat. with most metals, with salifiable bases & their carb^{on}. with most salts it turns sterc^{oraceous} to ether, chars or otherwise decomposes all organic subst^{ances} & with veg^{etable} alk^{ali} sol^{utions}. effects of prism by this are double heat in the throat & stom. extreme fetid^{ness} of breath, nausea & excessive vomit^{ing} of black or red^d matter, excruciat^{ing} pains in bowels, difficulty of breath^{ing}, extreme anguish, feel^{ing} of cold on the skin, great prostration, can^{not} vomit & death. the intellect^{ual} facult^{ies} remain unimpaired often the uvula, palate, tonsils & the fauces gr^{eatly} are cov^{ered} with black or white sloughs. As antidote administer magnesia freely, if it is not at hand a sol. of soap. great promptitudo is requisite. after neutraliz^{ing} the poison take largely of mucilag^{es} & other drinks.

Acid^{um} Sulph^{uric} Dilut^{um}. Take of Sulph^{uric} ac. ℥ 3j. Distil^{led} wat^{er} ℥ 3xiii. add the ac. grad^{ually} to the wat^{er} in a glass vessel & mix it is tonic, refriger^{ant} & astring^{ent}. often given with advantage in low typhoid fev^{er}. as a tonic in convalesc^{ence} of prostrat^{ed} fev^{er}. an act^{ive} in colligative sweats passive haemorrh^{ages} & diarrh^{ea} depend^{ent} on a relax^{ed} state of the mucous memb^{er} of the intest^{ines}. in cutaneous affect^{ions} attend^{ed} with phosph^{oric} sediment it is much to be prefer^{red} to muriat^{ic} ac. ^{used also} as a gargle in ulcerat^{ed} sore throat & for cheek^{ed} excessive pytalism. as a wash for cutan^{eous} erupt^{ions} & bad ulcers. dose gr x to gr xxx in or 2 wineglass^{fuls} of wat^{er}. it injures the enamel of the teeth. less used than the lixiv^{um} of vit^{riol}.

Acid^{um} Sulph^{uric} Aromat^{um}. Sulph^{uric} ac. ℥ 3ij ss. bruise ginger 3j. bruise Cinam^{on} 3j ss. Alcoh^{ol} Oij. add the ac. grad^{ually} to the alcoh^{ol} & digest in a close vessel 3 days add the ging^{er} & cinam^{on}. macerate for a week. filter through paper. Prop^{er} red^d brown liquid, pecul^{iar} aromat^{ed} & w^{ith} suffic^{ient} dilut^{ion} of a grateful ac. taste. Med Prop. Tonic & astring^{ent}. the most agreeable mode of administ^{ring} Sulph^{uric} ac. Used in debility with night sweats, loss of appetite, convalesc^{ence} from fevers. used in combinat^{ion} with cinchona, cov^{ers} its taste & render^s it more effic^{acious}. dose gr x to gr xxx in a wineglass^{ful} of wat^{er}. 2 or 3 times a day, administ^{ring} through a quill.

Unguent^{um} Acid^{um} Sulph^{uric}. Dublin. Sulph^{uric} ac. 3j. Prepared lard 3j. mix them. part of the ac. becomes sulphurous ac. which escapes & a part of the lard is charred. dilut^{ed} with an equal weight of lard, it is partic^{ularly} good in ring worm & weaker in rheumatism & neuralgia.

Acidum Nitricum.

A dense, very sour & corrosive liquid, colourless or straw col. owing to the presence of nitrous ac. expos^d to the air it emits white fumes of a disagreeable odour. it undergoes slight decomposition expos^d to light turn^s yell. decomposes animal matt. is a strong caustic. stains the skin an indelible yell. is in compat^{ible} with the sul^{ph} of protox. of iron which it converts into the sul^{ph} of the sesquiox. with salifiable bases, carb^{on} & sulphurets & with the act^{ion} of lead & potasses & turns alcoh. to ether. Med Prop. Some^{times} antiseptic, largely dilut^d with wat. is a good drink in typhus. Used in syphilis & chronic hepatitis of India. it has excited ptysialism cannot be depend^{ed} on in syphilis, but is often an useful adjunct or a good predispos^{er} in worn out constitut^{ions} to the receipt of mercury. In diph^{theria} phagedena applied by a piece of lint tied round a small stick it is one of the best remedies. Concentrat^d Nitric ac. is a powerful & corrosive poison & one of the mineral poisons most frequently taken for self destruct. Immediately on swallow^{ing} it, burning heat in the mouth oesophagus & stom^{ach} is felt, acute pain, disengagem^{ent} of gas abund^{ant}, eructat^{ions}, nausea & hiccup follow^d by repeat^d & excessive vomit^{ing} of matter having a pecul^{iar} odour & taste. Rimefact^{ion} of the abdomen with exquisite tenderness, a feel^{ing} of coldness on the surf^{face}, horripilat^{ion}, icy coldness of the extremities, small depress^d pulse, horrible anxieties, continual loss^{ing} & contort^{ions}, extreme thirst, extremely fetid breath, the countenance exhibit^s the most complete pict^{ure} of suffer^{ing}, the consequences are nearly always fatal. Antidote, repeat^d doses of Magnesia, mucil^{aginous} drinks in large quantities, olive or almond oil in large doses, milt^{ed} ferment^{ed} & clysters until magnesia can be obtain^d & use abund^{antly} of a solut^{ion} of soap. Dose min. Nit^{ric} acid. ℥i. Tinct^{ure} p^{er}nit^{ric} xl. Aqua camphor. ℥ssiii
Ung^{uentum} acidⁱ nit^{rici}: Dulc^{ified} olive oil ℥ss. Prepar^{ed} oil ℥iv. Nitric ac. f. ℥vss. melt the oil & acid together in a glass vessel & as they congeal add the ac. & stir with a glass rod till it stiffens, used to syphilis & ulcers eruptive affect^{ions} &c

Acidum Muriaicum.

Prep. Introduce pure fused common salt into a matrass placed in a sandbath. put an Stube to the vessel & connect it with a series of bottles each $\frac{2}{3}$ full of wat. Take of sulph^{uric} ac = in weight to the salt employ^d Dilute it with $\frac{1}{3}$ its weight of wat. & gradually introduce it in the matrass which should only be $\frac{1}{2}$ full. as the volu^{me} of gas slackens apply heat till the wat will no longer absorb or the matrass will no longer yield more. apply ice to the absorb^{ing} bottles that the wat may not become warm thereby losing a port^{ion} of its absorb^{ing} prop^{erty}. the arrangem^{ent} of the apparatus is that of Woulfe's. Rationale. Salt = Chlorine & Sodium. Sulph^{uric} ac diluted = Sulph^{uric} ac + wat. The wat is decompos^d its oxyg^{en} combin^{ed} with the sodium forms soda which with the sulph^{uric} ac forms sulph^{uric} soda. The hydrog^{en} of the wat & the chlorine of the salt combine & escape form^{ing} muriat^{ic} ac. gas Prop. transparent colourless liquid, corrosive taste & suffocat^{ing} odour. on expos^{ure} to air it emits white fumes. the gas escap^{es} & unit^{es} to the moist^{ure} of the air. medic^{inal} ac. of the sp. gr. of 1.16 when most highly concentrat^d 1.21. it blackens organic subst^{ances} thus concentrat^d by add^{ing} nit^{rate} of silver to muriat^{ic} ac. a white chloride of silver is precip^{itated} is also in compat^{ible} with alkalis & most ear^{thy} oxides & thus carb^{on} sulphuret & tart^{ar}ate of potassa & tart^{ar} emet^{ic}. tart^{ar} ariz^{on} iron, nitrate of silic^{on} & solut^{ion} of subacet^{ate} of lead. Med Prop. ref^{rigerant} & antiseptic, largely dilut^d it is given in some fevers. Syph^{il} to counteract ^{the} phosphatic in the urine to prevent generat^{ion} of worms after a free evacuat^{ion} of the bowels. Administ^{er} in a strong inf^{usion} of quassia in malign^{ant} typh^{us} & scarlatina. Effects in overdose much the same as Nitric ac. & same antidotes & treat^{ment}. Acid^{um} Mur^{iaicum} Dilut^{um} Muriat^{ic} ac. f. ℥iv. Distill^{ed} Wat^{er} ℥xii mix in a glass vessel Dose gr^{ains} xx to gr^{ains} lxx.

NITRIC ACID.—ACIDUM NITRICUM. U.S.

Directed in the Pharmacopœia of sp. gr. 1.5, but never so strong in the shops. Two forms in the shops, distinguished as *nitric* and *nitrous acids*. The former colourless or slightly yellowish—the latter of a deep orange. The latter consists of nitric acid with some deutoxide of nitrogen, and by dilution is converted into nitric acid—therefore as taken is not different from the former. Incompatibles.

Effects on the system, those of a tonic and refrigerant. Concentrated, a corrosive poison. Treatment of the poisonous effects. Therapeutical applications. Dose of the strongest acid, 2 to 5 minims in a wineglassful or more of water, which it renders decidedly but agreeably sour. The acid often weak in the shops. Its strength judged of by its taste when diluted. Dose gradually increased—if too large, produces cramps in the stomach.

Hope's mixture of nitrous acid, camphor water, and laudanum, given in dysentery, diarrhœa, and cholera infantum. External use of nitric acid, diluted or in the form of ointment. It should never be given in silver.

MURIATIC ACID.—ACIDUM MURIATICUM. U.S.

Mode of preparing the officinal acid—form—colour—specific gravity—odour—taste when diluted. Incompatibles. Effects on the system. Therapeutical applications. Dose, 5 to 20 drops, in fʒij. or fʒiv. of sweetened water, frequently repeated. In gargles, fʒj. to fʒvj. of water.

NITROMURIATIC ACID.—ACIDUM NITROMURIATICUM. U.S.

Mode of preparing—chemical changes—composition of the resulting fluid. Proofs that reaction has taken place. Advantage of adding sulphuric acid when the nitric and muriatic are feeble.

Effects on the system. Therapeutical applications. Dose, 2 to 10 drops, 3 or 4 times a day, in sufficient water—to be gradually increased as the stomach will bear it. Modes of external application—in wooden vessels. Strength for external use, fʒj. to Cong. j. for bath—fʒij. to Cong. j. for footbath. Temperature 96° F.

Water of chlorine—nature—therapeutical applications. *Chlorine* itself inhaled in affections of the chest. Great danger from its incautious use. It should always be very largely diluted with atmospheric air.

CLASS III.

ARTERIAL STIMULANTS.

General Observations.

Medicines which excite the circulation, with little comparative influence on the nervous system.

Applicable to cases of great prostration, when sufficient energy of system remains to sustain it at the point to which it may be elevated. Much care is requisite in their use even in cases of prostration. When this depends on external violence, as in concussion of the brain, or occurs in the first stage of acute diseases, as in the chills of fevers, caution is necessary, in consequence of the danger of the subsequent reaction. In such cases, their internal use is to be avoided unless essential to life, and external stimulation is greatly preferable. When the debility occurs in the course of an acute disease, they may be used more freely, as there is less danger from reaction. The existence of inflammation is not always an obstacle to their use. In such a case when called for by great depression of the vital actions, more care is demanded than in the absence of inflammation. In the suppurative or gangrenous stage of inflammation, they may be used freely if called for by the symptoms. The tendency here is to health, and stimulants support the vital actions till the requisite changes have been accomplished.

The number belonging to this class is very large, but most of them possess other properties also, which rank them in other classes. Those only are mentioned here which are used chiefly in reference to their stimulant properties.

CAYENNE PEPPER.—CAPSICUM. U.S.

Fruit of *Capsicum annuum*, and other species. An annual plant, cultivated but not indigenous in this country.

Character of the fruit—shape—nature of the surface—colour—internal arrangement—colour of the powder—effect of exposure—odour—taste—relations to water and alcohol. Active ingredient, a peculiar acrid principle called *capsicin*, not volatile.

Effects on the system—therapeutical applications.

Used in substance, infusion, and tincture. Dose of the powder, 5 to 10 grains, given in pill—of the infusion, made with two drachms to half a pint of boiling water, f $\frac{2}{3}$ ss.—of the tincture, f $\frac{3}{4}$ j. or f $\frac{3}{4}$ ij. Mode of preparing Cayenne pepper as a gargle.

OIL OF TURPENTINE.—OLEUM TEREBINTHINÆ. U.S.

Often called *spirit of turpentine*. Source and mode of preparing it.

Properties—form—colour—odour—taste—specific gravity—solubility in water, alcohol and ether—chemical constitution—effects of exposure—mode of separating the resin.

Effects on the system. Therapeutical applications with a view to its stimulant properties.

Dose, 5 to 20 drops every half hour, hour, or two hours, in acute cases—two or three times a day in chronic cases—to be suspended if it induce strangury. Best given in emulsion with gum Arabic, loaf sugar, and cinnamon water or mint water. If it purge, laudanum may be added, when not contra-indicated by disease of the brain.

PHOSPHORUS.

A powerful stimulant, perhaps the most powerful. Dangerous. Seldom proper to prescribe it. Should never be given in substance. Best administered in oleaginous or ethereal solution. Dose, one-twelfth of a grain.

CARBONATE OF AMMONIA.—AMMONIÆ CARBONAS. U.S.

Improperly called *volatile alkali*, as this name belongs to pure gaseous ammonia. Mode of preparing it—properties—form as it is kept in the shops—colour—translucency—smell—taste—solubility in water and alcohol—effect on vegetable blues—precise chemical nature—change on exposure in appearance and composition—signs of goodness.

Effects on the system. Increases the circulation and invigorates generally the vital functions, without any decided tendency to the brain. Operates upon the nervous system in general more than any other medicine placed in this class, and might be ranked with

Capsicum.

stem thick, round, smooth & branch² & 2 or 3 ft¹ high. leaves are irreg^{ly} placed on long foot stalks are point^d & smooth
flowers solitary, white on long peduncles at the axils of the leaves. fruit pendulous, pod like berry light, smooth
& shin^g. bright scarlet, orange or yell. with 2 or 3 cells contain^g dry loose pulp & m^{er}mer. flat, kidney shape whit^e
seeds. native of the warmer regions of Asia & America. cultivat^d all over the world. flowers in July & August, fruit
ripens in Oct. we are partly suppl^d from the W. Ind^{ies}. Powd. bright red, fades on exposure & ultimately is pale yell.
Down peccol^{um} & somewhat aromat^{ed} stronger in the recent fruit. taste bitter, fiery, acid. yields its virtues to
Alcoh. Capsicin resembles an oil or soft resin, yell^{ish} brown or red-brown, when tast^d though at 1st balsamic
soon produces an insupportably hot pung^t impress^{on} over the whole interior of the mouth. heat^s it melts, but
her heat^s it emits fumes, which in very small quant^{ies} excite cough^s & sneez^{ing}. is slightly sol. in wat & vinegar, very sol.
in Alcoh. ether, oil of serpent. & the caustic alkalis. Med. Prop. a powerful stimuli: swallow^d it produces a
sense of heat in the stom^{ach} & a gush over the body without narcotic effect. its proportion^{al} local act. far exce^{eds}
ed its gen^{eral} act. much used as a condim^{ent}, corrects the flatul^{ent} tendency of cert^{ain} veget^{ables}. bring^s them within the digest^{ive}
powers of the stom^{ach}. occasional^{ly} prescrib^d in dyspeps^{ia} & atonic gout. especial^{ly} accompan^{ied} by flatul^{ence} or in intemp^{erant}
persons a stimuliⁿ in palsy & cert^{ain} lethargic affect^s. is somet^{imes} an exall^{ant} adjuv^{ant} to sulps. of quina excite^d the
stom^{ach} to the influence of the tonic. it is most useful in malign^t sore throat & scarlet fever in which it is used
internal^{ly} & as a gargle. The formula ~~is for 2~~ 2 tablespoonfuls pow^d pepper. 1 teaspoonful ^{salt} common
infuse in a pint of boil^d wat & rim $\frac{1}{2}$ & $\frac{1}{2}$. when cool strain through a fine linen cloth. dose 1 table^{spoon}
ful every $\frac{1}{2}$ hour. this is for the worst cases, more diluted it is used in milder scarlatina is somet^{imes} used
to prevent sea sickness dose a teaspoonful in some conven^{ient} vehicle at 1st occurrence of nausea.

external^{ly} it is a powerful rubefac^{ient} thus used in local rheumatism & in two forms of disease to create
a superfic^{ial} stimuliⁿ impress^{ion}. applied in cataplasms, better as a lotion mixed with heat^s spirit. the
powd. placed on relax^{ed} wriths is beneficial. also the tinct. it does not blister. a good gargle is made
by infus^{ing} of the powd. 3ss. to boil^d wat Oj. or by add^{ing} of the tinct. of capsic. f 3ss to rose wat f 3viii.
Tinct. Capsici. Lagom^{us} Pep^{er} 3j. Dilut^d Alcoh. Oij. macerate 14 days, filter through paper. dose 1 to 2 f 3

Class. Terbinthinae.

Prepared by distillat^{ion} from com^{mon} turpentine. it is best distill^d with wat. to have it perfectly pure it
should be redistill^d from a sol. of caustic potassa. great quantities are distill^d in & export^d from N. Carolina
Prop. limpid, colorless, strong, penetrat^{ing} peccol^{um}. odor & hot pung^t. bitter^{ish} taste. sp. gr. 0.86 at 72° F. highly
volat^{ile} & inflamm^{able}. boil^s at about 300°. slightly sol. in wat. less so in Alcoh. than most volat^{ile} oils.
very sol. in sulps. ether is very sol. in hot^{ter} Alcoh. but is deposit^d on cool^{ing}. commercial oil of serpent
contains a port. of oxyg^{en}. when pure it contains only carbon & hydrog^{en}. & is thought to be isomeric with
the radical of camphor. exposed to the air it absorbs oxyg^{en}. a resin is form^d the oil becom^{es} thicker, yellow
& less active. by agit^{ing} it with $\frac{1}{2}$ of Alcoh. cold. the resin is dissolv^d allow to stand & each liquid takes its

is put in the bottle accord^g to its sp. gr. about $\frac{1}{5}$ of the alcohol is retained by the oil, but is removed by agitation with water. Med. Prop. Stimul^t, diuretic occasi^o diaphoret^c, anthelmint^c in large doses cathartic, & renal-cubefacien^t in moderate doses it produces a sense of warmth in the stom. increases the circulatⁿ & the heat of the skin. In small repeat^d doses stimul^t the kidneys & if long contin^{ed} irritates the urinary passages even to strangury. Used intern^{ly}, exter^{ly} or by breath^{ing} its vapours in odour of violets is impart^d to the urine. In large doses produces vertigo, even intoxicatⁿ. with nausea & succeeded by speedy & risk catharsis, in which case it is not apt to stimul^t the kidneys as much as when taken in small doses from its speedy evacuatⁿ from the bowels. In low fever particu^{lar} if ulcerat^d of the mucous membr^e is suspect^d. There is a particul^{ar} state in typhoid fever attend^{ed} with imminent danger in which the oil is nearly always efficacious viz in the latter stages of typhoid fever as also in linger^{ing} remitt^{ent} when the tongue throw^s off its fur in patches suddenly ceases to clean itself becomes dry & brown^{ish}, the skin is dry, the bowels stop^d & distend^{ed} with flatul^{us} the patient someti^{mes} affect^{ed} with slight delirium. Doses of 10 to 15 drops every hour are almost certain to bring a return of moist coated tongue & all the other favourable sympt^{oms} attend^{ed} a favourable recovery from fever this change is ascrib^{ed} to the healthy changes effect^{ed} by the oil on the ulcerat^d surf^{ace} of the intestines. In the latter stages of purpurat^d fever even after the discharge of black vomit from the mouth & rectum this oil in combinatⁿ with morphia has produced remarkable cures. To give in chronic rheumat^{ism} particu^{lar} lumbago & sciatica also in neuralgia epileps^y, tetanus, pressure becom^{ing} of the bowels, in disord^{er} aliment^{ary} canal with sallow counten^{ance}, furred tongue (mild abdomen - soon or later constat^d & gnl bad health. In obstructⁿ of the bowels, in some forms of chronic dysentery & diarrh^{ea}, obstinate gleet & leuc^{orr}h^{ea}, in suppression of urine & in chronic nephritic & calculous affect^{ed} is very useful as a vermifuge especially in cases of taenia the worms are poisoned, weaken^d, loose their hold & are discharg^d in worms in the stom they are digest^d & digest^d given as a diuretic in dropsies with feeble act. as a local stimul^t or emminative in some cases of flat^{ulent} colic & gout in the stom.

Dose for tape worm $\text{℥} \frac{3}{4}$ to $\text{℥} \frac{1}{2}$ followed by castor oil if it do not operate in 3 or 4 hours. In taenia 3ss twice a day continued some time. for ordin^{ary} cases of worms the ordinary dose gr^{ss} to gr^{xxx} See pars 49 & 50.

Phosphorus.

Is a dangerous med. & should be as little used as possible, burn^d at the temperat^{ure} of the body there is reason to believe that cases of death have resulted from its combustⁿ in the stom. where it would always find enough oxyg. for this purpose.

Ammonia Carbonas.

Prep. Mixture of Ammonia to j. dried chalk to jss. pulverize separately then mix them thoroughly & sublime with a grad^{ual} increas^e heat. the retort should be earthenware & have a wide cylind^{ric} neck the receiver should be a glass jar to facilitate the extractⁿ of the sublimate. Prop. is in white moderately hard, translucent masses of fibrous & crystal^{line} appear^{ance}. pung^{ent} ammoniac^{al} smell, sharp penetr^{ating} taste. sol. in 4 times its weight of col. wat. is decompos^d with effervesc^{ence} by boil^{ing} wat. sol. in dilut^d alcoh. & in heat^d alcoh. with effervesc^{ence} of carb. ac. has an alkaline react^{ion}. it browns turmeric paper. heat^d on a piece of glass it evaporates without residu^e.

is decomposed by acids, the fix^d alkalies & their carb^{te} lime wat. & magnesia, solutⁿ of chloride of calcium
alum. acid salt as bitartrate & bisulphate of potassa. solⁿ of iron (except the tartrate of iron & potassa).
corrosive sublimate, acet^{te} & subacet^{te} of lead & the sulph^{te} of iron & zinc. Composit. 3 equiv. carb^{ic} ac.
2 ammonia, 2 water or the same thing 1 bicarbonate & 1 monocarbonate combin^d with 1 wat
& is a hydrated sesquicarbonate. Long kept or expos^d it becomes bicarbonate, is opaque & friable &
falls to powder. unless translucent it should be reject^d.

An expectorant in the last stages of phthisis by increase the muscular power & facilitates the excretion of the sputa. A stimulant in typhus fever in connexion with wine & whey. its advantage here is its power of increase the act. of the heart & arteries without unduly excite the brain. is similarly used & also as an antacid in certain stages of atonic gout & in derang^d stom^{ach} of debauch^d persons. As a diaphoretic in gout & chronic rheumat. particul^r in the latter combin^d with guaiac. seldom as an emet^{ic} though suet in paralysis. Extern^{ly} a rubefac^t. reduc^d to powd. & mix^d with some mild ointment is good in local rheumat^{ism}. One part of it with 3 of extract of belladonna forms a good plaster for relieving local & spasmod^c pains. coarsely bruis^d & scent with oil of lavender it forms the ordin^y smell^d salts used in syncope & hysteria. On account of its volatility it should never be given in powd. The pills are made up with some veget. extract as of chamomile for example & should be kept in bottle not in box.

Spiritus Ammoniac Aromaticus. Prep. Muriate of ammonia. ℥v . Carb^{ic} of Potassa ℥viij . bruis^d Cinnamon, bruis^d cloves, ā ā ℥ij . Lemon peel ℥iv . Aleoh. wat. ā ā Ov . mix them & distil Seven pints & $\frac{1}{2}$. Use it stimulant & antacid in headache dose gt x to gt lxx or more dilut^d with wat. is compatible with sulphate of magnesia & is add^d to aperient draughts of that salt to render them less offensive to the stom^{ach}.

the nervous stimulants; but its effects on the sanguiferous system are most obvious. Has some tendency to increase the secretions, particularly that from the skin and lungs. Is also antacid.

Therapeutical applications. One of the best stimulants in low forms of fever. Reasons for its preference over others. Also used in typhoid pneumonia, retrocedent and atonic gout, dyspepsia with acidity and without inflammation, chronic rheumatism, bites of poisonous animals, intoxication, &c.

Dose, 5 to 10 grains every half hour, hour, or two hours. Reason for such short intervals. Best administered in solution with sugar and gum to obtund its acrimony. Sometimes given in bolus.

Another preparation of ammonia sometimes used as a stimulant, viz. the *aromatic spirit of ammonia*; but also used for other purposes, and described elsewhere.

CLASS IV.

NERVOUS STIMULANTS.

General Observations.

Medicines which to the power of stimulating the heart and arteries, superadd an influence of an excitant character over the nervous system. They exhibit no special tendency to the brain, but appear to act equally over the whole nervous system which controls the functions of relation. Their action upon the nerves is not attended with any very obvious phenomena in the healthy state. Perhaps the imagination and the mental faculties generally may be somewhat excited, and the flow of spirits may be brisker. But their influence is powerfully exhibited in certain deranged conditions of the nervous system. They are applicable to all cases of this kind not connected with inflammation or arterial excitement, and particularly to such as are associated with general debility.

One of the modes in which nervous derangement is exhibited is spasm. When this arises from irregular distribution of the nervous influence, dependent upon debility or any other cause not connected with inflammation, it may often be controlled by these medicines. Hence the name of *antispasmodics*. Reasons for considering this an improper designation.

Many other symptoms of nervous derangement besides spasm relieved by nervous stimulants. Among these may be mentioned morbid vigilance, restlessness, dejection of mind, hypochondriasis, and even mental derangement.

It is true that all these effects are also obtained from the cerebral stimulants or narcotics; but these, in addition to their general nervous influence, act with especial energy on the brain, and on this account cannot always be given safely in cases which call for the nervous stimulants. They are, besides, less powerful, as a general rule, than the latter class, in the general influence alluded to.

Remarks on the *modus operandi* of this class of medicines.

MUSK.—MOSCHUS. *U. S.*

Product of *Moschus moschiferus*. Native country of this animal. Its general character and habits. Part from which the musk is obtained. Countries from which it is imported. Appearance externally and internally of the pods in which the musk is contained. Modes of adulteration, and substances with which it is adulterated. Mode of discovering adulterations. Relative value of the commercial varieties of musk.

Properties of musk as in the shops—form—consistence—colour—odour—taste—relations to water and alcohol—complexity of its chemical composition—evidences of good quality—mode of keeping.

Effects on the system. Therapeutical applications.

Given in pill, or suspended in the form of emulsion. Medium dose, 10 grains; but the dose varies from 5 grains to ʒj. To children often advantageously given in enema.

Artificial musk. Mode of preparing.

CASTOR.—CASTOREUM. *U. S.*

Product of *Castor fiber* or beaver. Part of the animal from which it is derived. Sensible properties. Little used. Dose in substance, 10 to 20 grains—in tincture, fʒj. to fʒij.

ASSAFETIDA.—ASSAFETIDA. *U. S.*

Insipated juice of *Ferula Assafetida*—an herbaceous umbelliferous plant of Persia. Made in which the juice is obtained and hardened. Rout by which it is sent into the market.

Shape in which it is kept in the shops—consistence when fresh—effects of time on its consistence—colour externally—colour and general aspect of the fracture—effect of exposure on the colour—odour—taste—effects of time on the smell and taste—effects of heat—chemical nature—relations to water and alcohol—influence of water on the tincture.

Active ingredients, resin and volatile oil.

Effects on the system. Therapeutical applications. Dose, 5 to 20 grains or more. Given in pill or emulsion. *Mixture of assafetida.* Dose of the gum-resin in enema, ʒss. to ʒij. with Oss. of water. Dose of the tincture, fʒj. Sometimes used externally as a plaster.

General Observations.

The term antispaſmodic applied to all medicines as a class having antispaſmodic qualities is evidently erroneous, from the fact that ſpaſms ariſe from various cauſes unknown, we cannot tell whether they are the reſult of increaſed or decreaſed act of the nerv^s ſyſt. we only know that theſe medic^s act as regulat^r in ſuch deſord^r action. & medicines which would be conſid^d antispaſmodics rank^d as a class would be found to vary in nearly every & certainly in the moſt eſſent^l modes of their action.

Moschus.

The Moschus moschiferus, cloſely reſembles the deer in ſhape & ſize, gr^l about 3 ft long, hanches are more elevat^d than the ſhoulders. 2 tuſks project downwards from its upper jaw each about 2 inches long curv^d backwards & ſerv^t to extract the roots which the animal feeds upon. Ears long & narrow & the tail very ſhort. the fleece conſiſts of ſtrong, elastic, undulat^d hairs, varies in col. with the ſeaſon, the age of the animal & the place which it inhabits. gr^l col. deep iron gray, the individual hairs are whit^h near the root & fawn col^r or black near the tip. The muſk is obtain^d from the male & is found in an oval, hairy, project^d ſac from 2 to 3 inches long & one to 2 broad & is ſituated between the umbilicus & the prepuce communicat^d extern^{ly} at its anterior part by a ſmall hairy oriſce & mark^d poſteriorly by a groove or furrow correſpond^d to the open^g of the prepuce. it is lined internally by a ſmooth membrane which is thrown into a number of irreg^l folds forming incomplete partitions. In the ſac of the vigorous adult 3vi of muſk are found in the old ones only 3iii & none in the young. The animal inhabits the mountain^s regions of central Asia from India to Siberia & from the Turcoman country to China. it is active & timid frequent^{ly} the moſt inacceſſible crags of the m^{ts}. it hides dur^g the day & feeds at night. it is hunt^d for its hide as well as for the muſk. as ſoon as the animal is kill^d the ſac is cut off, dried, & ſent to market. It is imported from China, Calcutta & Ruſſia. that from Canton is the beſt & is ſaid to come from Tongum, the Ruſſian is the pooreſt & comes from the ſouthern borders of Siberia, that of Calcutta intermediary to the two is from the Himalay M^{ts} & Tibet. our ppl. ſupply is from Canton. Adulterations. The price of this med. is ſo high & its ſupply ſo limited as to induce adulterat^{ns} as viz. The Chineſe 1st commence the adulteratⁿ & it is finiſh^d in Europe & America. The ſac is ſomet^e open^d the muſk remov^d & its place suppl^d by a mixtⁿ of dried blood which bears a cloſe reſembl^{ce} to muſk. the ſerotum is ſomet^e fill^d with an adulterat^d mixtⁿ & ſold. ſomet^e the ſac is made from the ſkin. Sand lead, iron fil^{ings}, hair, animal membrane, tobacco, birds dung, wax, benzoin, ſtorax, aſphaltum &c. &c. are alſo among the common adulterat^{ns}. The bags ſhould have the charact^r of the ſac as deſcrib^d in the natural ſtate & ſhould ſhow no marks of hav^g been open^d. they are ſomet^e ſew^d up ſomet^e glued. the eye can detect the 1st by immiſſion in hot wat^r the latter if it burns with difficulty, has a feeble od. is pale or black feels gritty to the fingers, is very moiſt, or contains obvious impurities it ſhould be reject^d. Prop^r. in grains or lumps concret^d together, ſoft & unctuous to the touch, red^d brown or ferrugin^{ous} col. ſome hairs of the por^{us} are often mix^d with it. ſmell ſtrong, penetrat^{ing} & powerfully diffuſive, taſte bitter, diſagreeable & ſlightly acrid. ſcor^d. red^d brown burns with a white flame leav^g a light ſpongy charco^{al}. is ſol in wat^r, alcohol & more ſo in ſulph^{ur} ether.

It is composed of Wat. Ammonia, Stearin, olein, cholesterolin, an acid oil combin^d with ammonia, a volatile oil, muriate of ammonia, chlorides of potash^m & calcium, an uncertain ac. combin^d with ammonia, potassa & lime, gluten, albumen fibrin, a highly carbonac^e matt^r, sol. in wat. a solub. calcareous salt with a combust^{ble} acid, carbon^d & phosph^{us} of lime hair & sand, a peculiar bitter resin, osmazone, a peculiar subst^{ance} in part combin^d with ammonia. The infus. is yell^{ish} brown, bitter, strong musk smell & acid react. Tinct. redd^{ish} brown, transpar^{ent}. odour of musk. The act. of potassa on musk is attend^d with extricat^{ion} of ammonia. kept in glass bottles, well stopp^d in places neither damp or dry.

Med. Prop. Stimul^{ant} & antispasmod^{ic}: increas^{es} the circulat^{ion}, exalt^s the nerv^{ous} energy without deang^{ing} the purely cerebral funct^{ions}: for delicate persons it produces headache & other disagreeable sympt^{oms} even convulsions. it is very useful in prostrate condit^{ion} of syst. attend^d with nerv^{ous} agit^{ation} or irreg^{ular} muscul^{ar} act^{ion}. where a highly diffusib^{le} stimul^{ant} is want^{ed} in combinat^{ion} with a powerful antispasmod^{ic}: as in low typhus with subcultus tendinum, tremors & singultus also in gout in the stomach. in obst^{inate} hicough, in convulsions of children aris^{ing} from intestinal spasms. combin^d with opium administ^{ered} in large doses in tetanus, used in Epilepsy, hysteria, Palpitat^{ion}, asthma, peritonitis, cholera, colic &c. The ppl object^s to musk are its high price & its impurity.

Moschus Saccharatus. add drop by drop 3 parts of fum^{us} nitric ac. to one of pure rectified oil of amber. Stir with a glass rod & knead under pure wat. to remove any excess of ac. yell^{ish} brown col. viscid. odour of musk, uses the same dose for adult gr x. for a child 2 grs $\frac{1}{2}$ to 1 gr. repeat^{ed} in each case every 2 or 3 hours. it is less efficient than pure musk, but mure & cheaper than that often sold for pure musk.

Castoreum.

Between the anus & external genitals of both sexes are 2 pairs of membranous follicles of which the lower are larger & pear-shaped & contain an oily, viscid, highly odorous subst^{ance}. secret^{ed} by glands which lie externally to the sack. this is the castor. after kill^{ing} the animal, the follicles are remov^{ed}, dried by smoke or sun & sent to market. They come in pairs unit^{ed} by the excretory duct, the sacks being about 2 inches long, one gnt^{er} larger than the other, are flatt^{ened} wrink^{led} & of brown or black. ext. extern^{al}: intern^{al} are divid^{ed} into cells, contain^{ing} a redd^{ish} brown matt^r. interming^{led} with the whit^{ish} membr^{ane} of the cells. The Russian is better than the Missouri or Canada Castor. Good castor has a strong, fetid, peculiar odour, bitter, acid & nauseous taste. col. \pm ting^{ed} with red its virtues are extract^{ed} by alcohol & sulph^{ur}: ether. an infus. is made hav^{ing} its prop^{erties} slightly, the odorous ppl of the drug is dissipat^{ed} by decoct. damp & heat. impair its virtues. is used as the musk is said to be a good emmenagogue but is much more used in Europe than here.

Asafoetida. Product of Ferretus Asafoetida.

Has a perennial root, flesh & taper^{ing} about the size of a man's leg. beset with strong fibres near the top. fol. black ext^{ernal} & white intern^{al}: 6 or 7 leaves spring from the root, are near 2 ft long, deep green & fetid flower stalks. 6 to 9 ft high herbaceous, 2 inches in diam. flower^s yell^{ish}: the quality of the plant depends much upon its situat^{ion} & the soil. this plant is eaten with relish by the people & sheep crop the leaves greedily. the oldest plants are best & it is not used under four years of age.

rendering it finally black & solid. Med Prop. Stimul^t & antispasmod^c; diuretic, used in amenorrh^a, in spasmodic & convulsive affect^s. dose 5 to 15 grs. in some aromatic wat. externally it is rubefact^s & is used as a liniment in chronic rheumat^m & palsy, hoars^e cough & infantile convuls^s in which latter cases it should be rubbed along the spine mixed with an equal measure of laudanum & diluted with 3 or 4 parts of olive oil & brandy.

Allium. Internally taken the active ppl. is absorbed & carried through the syst. acts on the stom as tonic & carminat^s. excites the nerv^s syst. an expector^t & emmenagogue, is said to be a good antihelmintic. It is treat^d of more fully under the head of Expectorants (page 54). dose in subst^{ts}. 5ss to 3j. or 3ij. of the juice & 2ss. Thea Chinensis. An evergreen gn^l. 4 to 8 ft high though some^s even 30 ft. native of China & Japan. It is largely cult^{ivat} in China for commerce. The best is said to come from the country about Nankin. numerous varieties exist in commerce which can all be arrang^d in 2 divis^s green & black teas. Med Prop. Astring^t & gently excit^s. has a tendenc^y decided to the nerv^s syst. produces comfort & exhilaration & wakefulness. taken in excessive quantities it produces nerv^s & dyspeptic sympt^{ts}. In these respects green tea is more hurtful than black. it is given some^s advantageously in diarrh^a & to relieve nerv^s head-ache. Its characterist^c prop^s are not sufficiently decid^d to render of much use as a medicine.

Coffea Arabica is a native of Southern Arabia & Abyssinia & is now cult^{ivat} in the tropical regions of both hemispheres. it is now used as an article of diet all over the world. it is a general stimulant with a particular tendency to the nerv^s syst^m. produces wakefulness, increases the vigor of imaginatⁿ & intellect. & is even capable of resist^{ing} the intoxicat^s & soporific effects of alcoh^l to a certⁿ extent. by an abuse of its use dyspepsia & nerv^s affect^s are generat^d. individuals hav^g long suffer^d from sick headaches & vertigo have been entirely cured by abstain^g for a time from it. it is a good palliative in the paroxysm of spasmodic asthma. it has been found useful in a case of violent spasmod^c disease hav^g resist^d the influence of the most powerful antispasmod^c for several hours. also in chronic diarrh^a & in calculous nephritis. It is contra-indicat^d in all inflammatory affect^s of a high grade. It is prepar^d by boil^g the pow^d of the roast^d grains & clarif^y by the white of an egg. or by displacement. for med purposes use 3i coffee to Oj wat. boil^d.

Diacontium. Is the only plant of its genus. root perennial large abrupt, with many long fleshy fibres penetrat^g 2 or 3 ft. deep. flowers & bears fruit before the leaves come out, rising by long petioles from the root. They are round, strongly veined 1 or 2 ft long & 9 inches to 1 ft broad. grows throughout the northern & middle states, in swamps, damp meadows & woods, &c. If found in shops is the form of the root either whole or in slices & in radicles of the thickness of a quill. The odour is exceedingly fetid, taste acid prick^y & smart^y to the mouth & throat. The acrimony is entirely lost by decoctⁿ time & exposure destroy these qualities. Med Prop. Stimul^t antispasmod^c & narcotic in large doses produces nausea, vomit^g, head-ache, vertigo & dimness of vision. used in asthma, chronic cat^h, chron^c rheumat^m & hyst^{er}. dose in powder ʒx to ʒxx. grain^s ʒss to ʒss.

Prep. When the leaves fade the earth is remov^d from about the top of the root. the leaves & stem are remov^d & are thrown with other veget^l matter on the root as a protectⁿ from the sun. After a time a thin slice is cut from the top of the root. the juice & resid^u is collect^d. another is cut off the juice again collect^d & so on until the root is exhaust^d & dies. This operatⁿ lasts 6 weeks. the sun is as much exclud^d as possible. The juice of many plants is thus collect^d put together & harden^d in the sun. It is brought to India from Bushire & direct^l import^d here or by the route of G^r Britain. comes in mats of 90 or 90 lb. or in cases of 200 to 400 lb. also in casks. Prop. irreg^l masses. soft^l if fresh. yell^l or redd^l brown exteri^l & fract. irreg^l. whit^l & shin^l. Turns red on exposure to air & finally turns yell^l brown. This is a characteristic of assafoet^a & is attribut^d to the effect of light & air on the resin^l ing^l. The masses appear like distinct port^l sonet^l of white, pearly tears embed^d in a dark soft & more fetid paste. Odour alliaceous, fetid & tenacious. Taste bitter, acid & durable. Time & exposure render it hard, brittle, less odorous & less the taste. it softens by heat without melt^g. is of difficult pull orizat. is inflammable having a clear & lively flame. It is compos^d of volat. oil. bitter resin sol^l in ether. a tasteless resin insol. in ether. balsamin extractive. a gum contain^g traces of potassa & lime unit^d with sulph^r, phosphor^{us}, acet^{ic} & malic acid sulph^r of lime, carb^{on} of lime, oz. of iron & alumina, malate of lime with resin, water & impurities being ppl^d sand & woody fibre. forms with Alcoh. a clear tinct. which becomes milky by add^g wat. macerat^d in wat. it gives a turbid red solut. & triturat^d with wat gives a white or pink col^d milky emulsion of consid^l permanence. The volat. oil is separat^d by distillatⁿ is colourless. turns yell with age offensive odour. taste 1st flat after bitter & acid. Portions which are soft, dark brown or black^l. few or no tears, indisp^l to turn red when freshly broken, full of sand & stones &c. should be reject^d.

Med Prop. Moderate stimult^l power. antispas^m. expect^l & feeble laxative. its volat. oil is absorb^d as it is his cov^d in the breath & secret^l. As an antispas^m simply in hysteria, hypochondriasis, convuls^l. spasms of stom^l & bowels without inflammatⁿ. & irreg^l nerv^l disorders. as a combin^d antispas^m & expect^l in hoop^d cough asthma, infantile coughs & catarrhs accompan^d with nerv^l disord^l or a dioposit. to sink. In catarrhus semilis, in 2nd & 3rd stages of peripneumon^l notha, croup measles & catarrhs. in pulmonary consumptⁿ. in fact small complaints of the chest in which the lungs have not suffici^l nerv^l energy & there is little or no inflammatⁿ. as an enem^a in typhoid where there is flatul^{us}. this is also a good form in convuls^l. &c. its laxative qual^l are g^l an advantage. but if contraindicat^d administer with laudanum. is com^l combin^d with purgatives in cases attend^d with flatul^{us} & constipatⁿ is used in the East as a emollient children become fond of it from tak^g it in hoop^d cough & some persons use it habitually.

Mistura Asafoetidae Asafoet^a. ʒij. Wat. Oss. rub the assaf. with the wat. gradually add^g until thoroughly mix^d is known as milk of assaf^a. it is the best mode of administratⁿ for a speedy result. but is very disagreeable from its odour. dose one or 2 table spoonfuls frequently repeat^d or ʒʒij to ʒʒiv by the rectum.

down partial^y sol. in wat. alcoh. ether, vinegar, & alkaline sol.^s by nature. with wat. it forms a milky emulsion which becomes clear on stand^g. Tinct. is clear & becomes milky by add^g wat. Med Prop. Stimul^t & expector^t; in large doses cathartic & occasionally diaphoret^c. Emetic & emmenagogue has been in use since the highest antiquity, is now less used. it is used external^y as a plaster. See Page 55

Valeriana

The best comes from England. Prop. It consists of numer^s long, slender, cylindrical fibres issuing from a tubercular head or rhizoma, external^y is yell^d or brown, intern^l white, pecul^r odour, taste is^t sweet, then bitter & acrid. Wat. & alcoh. extract its virtues. It contains an essential oil in which its virtues reside it is of a pale green^d col. a pung^{nt} od. of Valerian & an acrid taste becomes yell^d & viscid by expos^r. also Valerianic acid a colourless liquid of resin^e consist^{ce}. odour of valerian, strong sour, disagree^{bl} taste. when 30 parts wat. & in all prop^s in ether & alcoh. forms sol^l. salts with salifiable bases, retain^t its pecul^r odour. Med Prop. gently stimulat^t with an especial direct to the nerv^s syst. but without narcot^c effect. produces in large doses pain in the head & heaviness with other nerv^s disturb^{ce}. is used in hyst^{er}, hypochond^{ria}, epilep^{sy}, hemicran^{ia}. in low fevers with restlessness morbid vigil^{ce} &c. In intermitt^{ts} combin^d with Bk. it is however at best an uncer^{tain} remedy. ^{is used in Cat^s} it is said to excite amot^{ions} proper^y

Oleum Succini.

Succinum (amber) is a kind of fossil resin probably from extinct coniferac^e pp^{ly} found on the shores of the Baltic or in the alluvial format^s along the coast, also near Catania in Sicily at Cape Sable near Mayotte river Maryland. also in N. Jersey. Prop. is brittle solid, gr^{ay} in small irreg^{lar} masses homogeneous test^{es} vitreous fract^{ure} & suscep^t of a fine polish. is negatively electrif^d by friction. col. yell. either light or deep, some^t red^d brown or even deep brown. tasteless, inodorous, if heat^d it exhales a pecul^r aromat^c pleas^{ant} smell. usually translucent, some^t transpar^{ent} or opaque. Wat. & alcoh. affect it but slightly. Heat^d in the air, it softens, melts, swells, inflames heat a small part of ashes. Distill in a retort with a tubular receiver, it yields 1st a sour yell. liquid, afterwards a thin yell^d oil, with a yell. crystal^{line} sublimate which is deposit^d in the neck of the retort & upper part of receiver. a combustible gas is given off which must be allow^d to escape. the heat is contin^{ued} the oil becomes black & of the consist^{ce} of pitch. it is call^d oil of amber. The crystal^{line} sublimate is succinic ac. impure by the presence of a part of oil. Amber is now used in med. only to prepare succinic ac. & oil of amber. The retort should be of iron or earthenw^{are} the amber should be pond^{ed} & mix^d with an equal weight of sand before being submit^t to heat. a glass retort cannot support the heat necessary to the decomposit^{ion} of the amber. The sand is in order to prevent too much swell^{ing} in the amber. The oil may be separat^d from the res. by a separat^d funnel Oleum Succini Rectif^m. Oil of amber Oj. Wat. O. vi. mix them in a glass retort, distill until 4 pints pass into the receiver. separate the oil from the wat. & shut it in air tight bottles. If quite pure it is as limpid as alcoh. colorless. od. strong, pecul^r unpleasant od. hot & acid taste. imparts these prop^s partially to wat. without being perceptibly dissolv^d. is partially sol. in dilute alcoh. entirely so in pure alk. light, air & heat darken its colour

Galbanum.

The concrete juice of an unknown plant & is obtained by making incisions into the stem or cutting it off above the root. It is brought ^{by} ~~from~~ ^{from} the Levant & some from India. comes in masses of whit^e red^d or yell^l tears irreg^{ly} agglutinat^d by a dark col^d yell^l brown or green^{ish} subst^e. \pm translucent & g^l mixed with pieces of stalk seeds & other foreign matt^r. is somet^e found though rarely in distinct, shiny round^d yell^l white or pale brown^d yell^l tears of the size of a pea. In cool weather is of the consist^e of wax, softens in summer & is ductile & adhesive by the heat of the hand at boi^d temperat^r. it is liquid enough to be strain^d & is usually so heat^d before being used. Inferior qual^{ty} are dark brown or black^d, all ways soft, the whit^e grains are absent & numerous earth impurities are present. Down peculiar & disagreeable, taste bitter^d acid & warm by Rikurat^r. with wat^r. a milky solutⁿ is form^d which deposits upon stand^g the great^{est} part of what has been taken up. wine & vinegar act similarly. The tinct^r is yell^l. has the taste & smell of galbanum & becomes milky by the additⁿ of wat^r, but forms no precip^{itate}. is wholly sol. in dilute alcoh^{ol}. Med Prop^s Stimul^{ant} expector^{ant} & antispasmodic. is intermediate in power to ammoniac & assafetida is less used than either of these & in the U.S. is rarely prescrib^d internally, its use being that of plaster to indolent swell^{ings} to promote resolutⁿ or suppuratⁿ. dose grx to grxx. in pill or in emulsion Rikurat^r with gum arab^{ic} sugar & wat^r.

Sagapenum.

Produce of an unknown plant. brought from the Levant. comes in irreg^l masses of agglutinat^d fragm^{ts} slightly translucent, brown^d yell^l olive or red^d yell^l. ext^{er}nal^{ly} paler intern^{ally}. consist^e of wax, mixed with impurities, seeds &c. alliaceous or hot nauseous bitter^d taste. it softens at the heat of the hand. Time & exposure harden it & render it darker burns with white flame & much smoke, sol. in wat^r & alcoh^{ol} entirely so in dilute alcoh^{ol}. Med Prop^s Moderate stimul^{ant} simil^{ar} though inferior to assafetida. dose grx to grxxx in pill or emulsion. used as plaster to indol^{ent} ulcers is however little used.

Ammoniacum.

Concrete juice of *Dorena Antoniacum*. grows spontaneously in several Persian provin^{ces}. also on the north east slope of the Hindoo Cosh Mountⁿ is 6 ft. high. In May it is pierced in innumerable places by a kind of beetle & from these punctures flows a milky juice which concretes upon the stem which is collect^d when quite dry. It is said to exude naturally, also to be collect^d in the same manner as assafetida. It comes to us ^{by} ~~from~~ ^{from} Calcutta. Some suppose the name to be deriv^d from the temple of Jupiter Ammon in the Libyan desert. others from Armenia from its having formerly been import^d into Europe through Armenia. Comes in tears of irreg^l shape \pm globul^{ar}, opaque, yell^l outside, whitish within, compact, homogeneous, brittle when cold. fract^{ure} shin^y & conchoidal. also in masses of tears embett^d in a dirty gray or brown^d subst^e. mixed with seed, sand &c &c. smell peculiar & stronger in mass than in tears taste sweet^{ish}, bitter & acid heat^d it becomes adhesive but does not melt. burns with a white flame swell^{ing} up with ^{smoke of} a strong resin^{ous} & slight alliaceous

GALBANUM.—SAGAPENUM.—AMMONIACUM.

These are all gum-resins, and possess properties as nervous stimulants analogous though much inferior to those of assafetida. Neither of them, however, is at present much employed in reference to these properties. *Galbanum* is occasionally used in plasters, and *ammoniac* as a stimulant expectorant.

VALERIAN.—VALERIANA. U. S.

Root of *Valeriana officinalis*—an herbaceous perennial, indigenous in Europe.

Shape and aspect of the root—colour—colour of the powder—odour—taste—relations to water and alcohol.

Active ingredients, a volatile oil, and a volatile acid called the *valerianic*, which rises with the oil in distillation.—Sensible properties of the oil of valerian.

Effects on the system. Therapeutical applications. Administered in powder, infusion, tincture, and oil. Dose of the powder, 30 to 90 grains—of the infusion, fʒij.—of the tincture, from fʒj. to fʒiv.—of the oil, from 4 to 6 drops—each dose to be repeated 3 or 4 times daily. Decoction and extract objectionable.

OIL OF AMBER.—OLEUM SUCCINI. U. S.

Origin of amber—shape—size of the pieces—translucency—colour—fracture—nature of the surface—taste—odour—relations to water and alcohol—effects of heat—products of distillation.

Mode of preparing oil of amber—appearance of the impure oil—mode of purifying.

Rectified Oil of Amber.—*Oleum Succini Rectificatum*, U. S. Consistence—colour—odour—taste—effects of heat—relations to water and alcohol—effects of exposure.

Effects upon the system. Therapeutical applications, internal and external. Dose, from 5 to 15 drops, in emulsion.

Various other vegetable products exert a stimulant influence over the nervous system. Among them are the following;—

GARLIC.—**ALLIUM.** U. S. Bulb of *Allium sativum*. Much used externally to relieve or obviate spasm, and to allay nervous irritation. The *bruised bulbs* applied in poultices to the feet, and with hot brandy as a lotion to the spine, chest, and abdomen. Treated of more fully in another place.

TEA and **COFFEE**, together with tonic and astringent properties, possess those of a powerful stimulant to the nervous system. Effects upon the system. Therapeutical applications.

SKUNK CABBAGE.—**DRACONTIUM.** U. S. Root of *Symplocarpus fatidus*. An indigenous plant. Place of growth—character of the plant—odour of the recent root—effects of time and exposure—influence on the system—therapeutical application.

SAID TO BE AN INFALLIBLE REMEDY FOR ASIATIC CHOLERA.—The Rahway (N. J.) Register of Nov. 25, copies the following recipe, published in 1832, in a number of the Dublin Evening Mail. It states that the recipe was communicated by Lady Ponsonby; that she, while in India in 1832 and afterward on her return to Europe, had invariably found it a successful remedy in her own family, and in all cases out of it that came to her own knowledge.

Recipe.—One and a half ounce of spirits of wine; one quarter ounce of camphor dissolved in the wine. Get a small vial of spirits of hartshorn.

Directions.—First, give a teaspoonful of hartshorn in a wine-glass of water. Begin immediately and give five drops of spirits of wine, (camphor,) filling the teaspoon with cold water; add a little sugar. Repeat this every five minutes until you have given three doses. Then wait fifteen minutes, and commence again as before, and continue half an hour, unless there is returning heat. Should this be the case, give one dose more, and the cure is effected. Let patients perspire freely, as on this life depends, but add no additional clothing.

Dr. Cenas. Custom House above royal
left side half way to Bourbon St.

Dr. Rushton corner Canal & Dauphin
entrance in Dauphin St.

Plumbi. acetatis
Aguae Menthae.

Rx Cholera injection.

Zinniae Sulphat.

3i

Tinct. Thebaic.

℥ 3iii.

Aqua. Camphorae

℥ 3vi.

of which make 3 injections

Rx Hydrarg. Chlor. mitc.

3i

Camphorae

grs XV

pulv. Capsici.

grs vi.

℥ Pill. iii.

hour.
after one
a 2^d pill
admit.
if return
if return
if return

repeat until returned.
if discharged.

repeat if discharged.

CLASS V.

CEREBRAL STIMULANTS.

General Observations.

Medicines which, with a stimulating influence over the circulation and the general nervous system, conjoin a peculiar determination to the brain. Called *narcotics* from the stupor which they produce in large doses. Reason for abandoning the old class of narcotics. The only points of resemblance between individuals composing the class of *cerebral stimulants*, are those mentioned in the definition. In all other respects they differ more or less from one another. They differ in the degree of their power, in the relative degree to which they affect the different systems or organs respectively, in the precise manner of affecting these systems or organs, and in their several local tendencies. Illustrations of these statements. The different character of the cerebral symptoms produced by the different individuals, is partly perhaps ascribable to a direction to different parts of the brain. Illustrations.

Cerebral stimulants, like all others, are followed by prostration proportionate to the previous excitement. Caution is requisite not to confound this prostration, which is a secondary effect of the medicine, with that apparently sedative influence upon certain functions which attends its primary action. Explanation.

In very large doses, the cerebral stimulants exert a less stimulant influence over the circulation, and a greater energy of action on the brain, which they disabie from receiving and transmitting due impressions. Life is destroyed by the cessation of respiration consequent upon the want of cerebral influence. Proofs of this fact.

Suggested that these medicines may act partly through the medium of the brain and nerves, partly in consequence of absorption and entrance into the circulation. Perhaps the different symptoms produced by them in different stages of their action may be ascribed, in some measure, to this cause.

They produce their peculiar effects on the system to whatever part they may be applied.

Their influence is diminished by habit more rapidly than that of any other class of medicines. Having no corrosive power, and in many instances no decided tendency to excite local inflammation, they may be given, in gradually increasing doses, till an enormous amount may be taken at one time, with present impunity. It is necessary gradually to increase their dose in order to obtain from them the same impression. When the susceptibility to one is lost or very much diminished, another of analogous properties may be advantageously substituted.

These medicines require to be given with caution. Besides the immediate danger from an overdose, they produce, when long continued, conditions of system which often result fatally. They wear out healthy susceptibility, and consequently produce ultimately a state of general debility, while by the over excitement of particular organs, they give rise to local inflammation.

As therapeutical agents, they are more powerful than any other class in supporting the system under a temporary failure of its powers. Reason for this stated. They may be made to act as substitutes for the purely nervous stimulants, by reducing the dose; as in this way their general influence over the nervous system is obtained, with less of their action on the brain. Illustrations of this fact. Difference in their mode of action, in cases of nervous disorder, as nervous stimulants and cerebral stimulants.

Different names given to the medicines belonging to this class, in reference to different effects which they produce. Thus they are called *narcotics* from the stupor they occasion, *anodynes* from their influence in relieving pain, and *soporifics* or *hypnotics* from their effect in inducing sleep.

ALCOHOL.

Product of vinous fermentation. Explanation of this process. Different fermented liquors. Distillation of these affords the spirituous or distilled liquors. Proof spirit. Different spirituous liquors. Proportion of alcohol in these liquors. By redistillation, official alcohol of sp. gr. .835 obtained. Alcohol cannot be obtained entirely pure by distillation. Absolute alcohol not used in medicine. Official alcohol or rectified spirit contains 15 per cent. of water. Uses of official alcohol in pharmacy and medicine. *Diluted alcohol* of the

General Observations.

Alcohol.

A peculiar liquid generated for the most part in veget. juices & infused by a fermentat. call^d vinous or alcohol^e. All liquids suscep^t of vin^e fermentⁿ contain sugar which by the fermentⁿ process is chang^d into Alcoh. + carb. ac. In order to have fermentⁿ sugar, wat^r, ferment & a cert. Temperat. are necessary. The manner in which the fermentatⁿ commences the react. is unknown as well as whether it is a peculiar veget. ppl or whether many veget. subst^s enjoy this prop. g^r all subst^s contain^t nitrogen, as gluten, albumen, casein matter &c possess this prop. fermentⁿ Temperat^r ranges from 60 to 80°. The process is thus explain^d. The sugar of whatever kind is changed to glucose or grape sugar which at 212° consists of $H^{12}C^{12}O^{12}$ & is resolv^d by fermentat. into 2 equiv. Alcoh. ($H^8C^6O^4$) + 4 carb. ac. (C^2O^2). The infus^s of potatoes & rice ferment though they are nearly entirely starch; this seem^s except. is explain^d by the fact that starch undergoes a spontaneous change, not yet well understood & becomes sugar. Thus a mixtⁿ of gluten from flour & starch from potatoes put in hot wat^r, the starch becomes sugar. Alcoh. exists in all vin^e liq^s & may be obtain^d from them by distillat. In them it is much dilut^d with wat^r & associat^d with colour^d matter, volat. oil & extract^s. besides diff. acids & salts. The distill^d product of wine is call^d brandy; of fermentⁿ molasses, rum; of cider, malted barley or rye, whiskey; of malted barley with rye-meal & hops & rectif^d from juniper berries, Holland gin; of malt^d barley, rye or potatoe rectif^d with Turpentine, com^m gin; of fermentⁿ rice, arrack. At a sp. gr. of 0.920 they are in com^m term^s proof spirit. if lighter above proof, if heavier below proof. Proof spirit contains about $\frac{1}{2}$ its weight of wat^r, a peculiar oil & other foreign matt^r. by redistillat. or rectificat. from 100 gallons, about 57 or 58 are held of rectif^d spirit of sp. gr. 0.835. Prop. a colourless, transpar^t volat. liquid, od. penetrat^t & agreeable strong burn^d taste absolute Alcoh. has never been frozen, burns without smoke or residue, produc^s wat^r & carb. ac. bluish flame if strong, yell^{ish} if weak. combines with wat^r & ether in all proport^s. It is stronger in proport. as its sp. gr. is less. Alcohol rectif^d or dilut^d is extensively used as a med. in the prep. of all the kinet^s ethers & resin^e extracts is add^d to the vinegar & some medicat^d wat^r. & to several decoct^s & infus^s in order to preserve them & to serve as a vehicle or diluent of certain active med^s. The sp. gr. of dilut^d Alcoh. is 0.935. Med Prop. Alcoh. is a very powerful diffusible stimulat^r. it is the intoxicat^d ppl of all liquids hav^g undergone vin^e fermentⁿ from the aton^d in combinat. with other remedies. It produces perspiration. everyone who smelt of much of it

to ex. is gr^{er} than Smyrna which is somewhat darker, it is brittle & as hard at the centre as external^y fract. conchoidal & of waxy lustre
small fragments translucent. Odour similar, but weaker than Smyrna exposed to the air some pieces become damp sticky, indicate the
frequent addⁿ of some deliquescent subst. it yields only 6 or 7 % morphia & should not be dispensed in the prep. of tinct^{re} as the
prescript. of the physician is bad on good Smyrna nearly twice as strong as the Egyptian little or no op^{ia} reaches us it is infer^{or}.
Prop^s of Opium, Good op^{ia} has a peculiar strong, nares^{cent} & a little & somewhat acid taste long chewed it excites irritatⁿ in the lips & tongue &
even blisters the mouth of those unaccustomed to use it. Col^{or} red^d brown or deep fawn, drawn over paper it leaves an interrupt^d trace of a
light brown col^{or}. Its tect^{ure} is compact. It is often soft, adhesive & tenacious in which state it cannot be pulver^{ed}. exposed to the air it
dries hardens becomes brittle & is readily pulver^{ed} into yell^{ow} brown which becomes adhesive upon a slight elevatⁿ of temperat^{ure}. Op^{ia} burns
readily on the applicatⁿ of a light taper. Yields its virtues to alkali wat^{er} & dilut^d acids but not to ether, in part to them a deep brown col^{or}.
Op^{ia} is inferior if black^{ish} or has a weak or very pyramidal smell, a sweet or slightly nauseous & bitter taste, a soft viscous or greasy consistence
a dull fract^{ure} an irreg^{ular} heterogene^{ous} Pearl arises from the presence of foreign subst^{ances}. Op^{ia} is compos^d of morphia, narcotina, codia, paramorphia
narcem, meconin, meconic & sulph^{ur} ac^{id}: a peculiar ac^{id} not yet well known, extract^{ed} meth^{od}, gum, resin, insol^{uble} in ether & contain^{ing} in aqueous solution
fix^d oil. a body resembl^{ing} eucathone, an odor^{ous} volat^{ile} ppl. lignin, peat^{er} ac^{id}, sulph^{ur} of lime, sulph^{ur} of potassa, alumina, iron & pseudomorphia,
which is found only occasionally. Morphia the active ppl. of op^{ia} exists in the state of a saline compound, compos^d of an alkali named mor-
phinum or morphia & an acid call^{ed} meconic the greek word for poppy. Narcotina or Narcotina accord^{ing} as it is consid^{ered} alk^{ali} or neuter. it
being denied a posit^{ive} alkali by some & therefore call^{ed} narcotina. It exists in a free state & is left behind in consid^{erable} quant^{ity}. when op^{ia} is mac-
erated in wat^{er}. White, tasteless & insiduous, crystals in silky flexible needles larger than morphia, fusible at a moderate elevatⁿ of temp^{erature}.
insol^{uble} in cold & sol^{uble} in 400 parts boil^{ing} wat^{er} & sol^{uble} in 100 cold & 24 boil^{ing} alcohol. is deposit^{ed} in both on cool^{ing}: is very sol^{uble} in ether, used in the fix^d &
volat^{ile} oils & the dilute acids. It reacts no alk^{ali} reaction veget^{al} col^{or}. & does not prevent acids from redd^{ing} litmus paper, but it unites with
some ac^{ids} form^{ing} definite crystals. Berzelius consid^{ered} it an alkali but it has very feeble neutraliz^{ing} power: its salts are more bitter
than those of morphia. In solut^{ion} reddens litmus and precipitates alkalis & infus^{es} of galls. Either in the sol^{id} form or dissolv^{ed} in acids it is not
possess^{ed} of much narcot^{ic} power. The narcotic effects arising from its use being probably to its impurity. 1 gr^{ain} produc^{ed} death in a dog in 24 hours
being administ^{ered} in olive oil by Magendie. produc^{ed} a stupor, unlike the composit^{ed} sleep of morphia hence he inferred that the injurious excitatⁿ
operat^{ion} of op^{ia} is owing to narcotina & administ^{ered} again in 24 gr^{ains} in sugar & a dog without destroy^{ing} him. Op^{ia} administ^{ered}: 30 gr^{ains} in aet^{her} ac^{id}
to several patients without effect. It had been given in combinat^{ion} with muriatic ac^{id} in interm^{ixt} & thus possesses strong anti-periodical
prop^{erty} & though a powerful febrifuge, it produc^{ed} no narcot^{ic} effects, was not emetic^{al} & nor caused the distress^{ing} headaches & restlessness
which often follow the use of quinia. It was also powerfully sudorific, dose gr^{ain} iij. 3 times a day. (Dr O'Shaughnessy, Calcutta). Narcotina
is obtain^{ed} from op^{ia} by wat^{er} but usually mix^{ed} with morphia in the process for obtain^{ing} that ppl. by ab^{stract}ing sulph^{ur}: ether Narcot^{ic} is dissolv^{ed}
the morphia is unaffected. wat^{er} & the narcot^{ic} is obtain^{ed}: also by digest^{ing} op^{ia} in sulph^{ur}: ether & evaporat^{ing} the solut^{ion}. The crystals of Narc^{otina}
are deposit^{ed}. Mod. Prop^s of Opium, It is a stim^{ulant} narcotic. taken in a moderate dose by a healthy person it increases the force,
firmness frequency of the puls^{es} augments the temp^{erature} of the skin, invigorates the muscular syst^{em}, animates the spirits & gives energy to the
intellect & faculties. its operat^{ion} is partic^{ularly} direct^{ed} to the brain, excit^{ing} its funct^{ions} & into excit^{ed} or delirium. This state combin^{es}
a calmness of corporeal action & a delightful placidity of mind succeed, the individual insensible to painful impressions forgets care

It is never used pure. Dilut^d & taken in small quant.^s it excites the syst. renders the pulse full, gives energy to the muscles & temporary exaltat. to the mental faculties. In some states of acute disease accompan^d by excess of debility it is a valuable remedy, as brandy in the sink^d stages of typhus. Each kind of ardent spirit is supposed to possess peculiar qualities, as brandy is simply cordial & stomachic; rum heat^d & sudorific; gin & whokey, general Alcohol remedies alone or in tinct. should be avoid^d in chronic diseases for fear of begett^d intemperate habits in patients. As an article of daily use besides great moral degradation it produces dyspepsia, hypochondria, dropsy, visceral obstruct^d, paralysis, & mania. Taken largely it is a poison, produc^d an apoplectic state & someti^m speedy death. The face becomes livid or pale, respirat. stertorous, the mouth frothy, sense & feel^d are \pm entirely lost. When danger is imminent administer an emet^c or use the stom. pump, affuse cold wat. on the head & neck of the patient. acetate of ammonia is said to be a good counterpoison, after death from Alcoh. it has been found in the subst^{ce} of the brain & in the ventricles.

Med Prop^s of Opium Continued & an anxiety submits himself to a current of indefinite & uncorrect^d but pleasurable fancies & is only conscious of a vague & quiet enjoyment. $\frac{1}{2}$ hour after the administratⁿ of the dose all consciousness is lost in sleep. The soporific effect lasts some hours & is succeed^d by \pm nausea, headache, tremors & other symptoms of diminished or irreg^{lar} nerv^{ous} act. which soon yield to the recuperative energies of nature, no harm result^s unless the syst^m is worn out by continual use. Other effects in a remedial point of view are obvious & highly important. All the secret^s except that from the skin are suspended or diminished. the peristaltic motion of the bowels is lessened, pain, inordinate muscular contract^d & gnl nerv^{ous} irritatⁿ are allay^d if not entirely reliev^d. In large doses the period of excitement & exhilaration is shorter, the soporific & anodyne effects stronger & of longer duratⁿ. & the success^{ful} debility more obvious & alarming. In Poison^{ous} doses it hardly produces any sensible increase of the gnl powers of the syst^m, but almost immediately reduces the frequency though not the force of the pulse, diminishes muscular strength, brings on languor & drowsiness, which soon insinuates a deep apoplectic sleep, a stertorous respiratⁿ, a dark suffusion of the counten^{ance}, a full slow & labor^{ing} pulse, an almost total insensibility to external stimuli.

Turn Over the leaf.

Europe & even in England. It is extensively cultivated in Persia, India, Egypt & Asiatic Turkey also in France where the seed & capsules are put to manifold purposes. The Capsule is smooth, glaucous, round 2 to 4 inches in diam. flat at top & bottom & curved with a persistent stigma marked by numerous divers rays visible above its upper part & appears to be ^{prorogated} partial septa or partial ^{prorogated} fimbriae on the interior circumference of the capsule from top to bottom. In the recent state, numerous white seeds adhere to the septa the seed of the black poppy are brown & even black. When dry the capsules are dirty white or purplish brown of the consistence of paper with little smell & are bitter on being long chewed. Used in France for obtaining Morphia also internally & externally in decoction, emulsion, syrup or extract to produce the good effects of opium. They are gathered a little before being ripe dried & sent to market. The seed abound with a bland oil which is extracted by expression. Many of the properties of olive oil is used for culinary & pharmaceutical purposes in paint & the manufacture of soap also for adulterating olive oil. The virtues of the plant reside principally in the capsule. Shortly after the fall of the flower, labourers proceed to the fields, make horizontal cuts in the capsules without penetrating its cavity. A white juice exudes in the form of tears. The field is left 24 hours & then the tears with a small part of epidermis are scraped off by blunt knives. It is now in a state of granular jelly it is put in earthen vessels beaten & mixed with saliva & when of proper consistence wrapped in leaves & sent to market. A further mode of extraction is to take these poppy heads which yield no more by manual beat them with a little water & insipidate the liquid by artificial heat. We derive it principally from Turkey, however is supplied from Turkey & their Asiatic dominions Egypt Persia & Hindostan also from Bahar, Benares & Malwa. Smyna Opium. This is one variety of Turkey Opium is the most abundant in our markets. comes in masses of $\frac{1}{2}$ lb or less to 1 lb & sometimes 2 or 3 lb in weight, original globular but indented, flat & irregular by pressure receives a fine soft from being packed in cases. It found in market the lumps are hard without & soft within, are externally covered by remains of leaves & by the dried capsules of a species of Rumex to prevent the surf from adhering notwithstanding which several masses often are consolidated into one which accounts for the frequent presence of the seeds of Rumex within the masses. The col. externally is brown interspersed with the fragments of leaves & seeds before alluded to. Internally it is light brown in the best pieces, darker in less good specimens. A peculiarity of this opium is that an incision made into a lump & then torn it carefully open, numerous shining minute tears are seen look like small seeds & are produced by the escape of the juice from the incised capsules & which are allowed to concrete before being removed. It is not subject to mould & heat. As other opium & the tears consequently preserve their original shape & in the finer specimens the fragments of capsules are the only impurity. The inferior has a musty smell & has ± numerous inclusions inside & in. The crack in the soft opium is adhesive, dull col. & stringy. in the dry spec^s is brittle shining & brown. has a strong narcotic odour & yields 10 to 11 % Morphia.

Constantinople Opium closely resembles Smyna Opium in size, shape & col. externally but differs from it by being entirely deficient of the tears which characterize the Smyna in its internal constitution. The Const. Opium is probably removed from the capsules before conversion or subjected to pressure afterwards the average is equal & some is said to have been found better than the Smyna. The spec^s contain 15 % morphia but it is thought to be the better Smyna selected & brought to the capital. Another quality is described contain only $\frac{1}{2}$ as much morphia as the Smyna but its shape & whole appearance give reason to think it Egyptian. Egyptian Opium occurs in small flat lenticular cakes 2 to 2½ inches in diam. covered by a poppy leaf the middle of which divides the surf into 2 equal parts. weight sometimes not over ½ ounce. Also in larger flat cakes 6 inches in diam weight 1 lb the brown col. the Opium is sometimes seen through the leaf, the surf appears uncoloured the leaf being still present. The Egyptian opium is always destitute of Rumex Capsules.

Med Prop^s of Opium Continued, impressions when a moment of consciousness is obtained by violent agitation or powerful
irritatⁿ applications, a confus^d state of intellect & an irresistible disposition to sink back into comatose sleep are sympt^s which
for the 1st few hours attend its poison^d operation. Though the pulse is slow it is often so full & so powerful in its beat as to render bleed^g
necessary. In the space of a few hours accord^g to the quant^y taken & the constitⁿ of the patient a crisis of genuine delirium ensues
which will be hastened in point of time, though it will be more under the control of remedies if the Op^m be remov^d artificially
from the stom. as by large doses of ipecac^{ua} or sulph^{ur} of zinc or mechanically by the stom pump. On death there appears to
be no inflamⁿ in the muc^{ous} memb^{er} of the stom or any where else the force of the med^{ic} is direct^{ly} to the cerebral & nerv^{ous} func^{tions}
& death arises from a suspension of respiratⁿ, from a want of due influence from the brain, a section of the
par vagum on both sides neither prevents or retards death of animals to which large doses have been given. It seems
that the active ppl enters the circulatⁿ & influences the nerv^{ous} syst^{em} wherever it is found by immediate contact. Its anodyne
sedative & soporific effects are as much the direct results of its action on the brain as its previous excitⁿ prop^s. It is only in the
state of exhalation & collapse which ensue that we find an illustratⁿ of the law by which an unnatural exaltation
is follow^d by a correspond^g depression. It is probable that the excitⁿ which almost immediately supervenes its intem^{per}
use is deriv^d from new^{ly} communicatⁿ while its soporific & anodyne^{ly} effects are attribut^{ed} to its absorptⁿ
& entrance into circulation the ensuing prostratⁿ result^{ing} from the agitⁿ into which the organs have been thrown.
Artificial respiratⁿ becomes highly useful in treat^g a patient labour^{ing} under poison^d doses if the heart still beats. If
never so little there is always hope of recovery if resort is had to this means it is necessary somet^{imes} to continue it for a
number of hours. In some indiv^{iduals} Op^m gives rise even in very small doses to excessive sickness, vomit^{ing} & spasm of stom
in others to restlessness, headache & delirium & somet^{imes} though in large doses to obstinate wakefulness. The headache, want of
appetite, & vomit^{ing} &c which usually follow its narcot^{ic} operatⁿ are uniformly felt by certain persons to a degree which renders its use
very inconvenient. Dissolv^d in vinegar or lemon juice it is more pleasant & often more effectual than in sub^{stance}. Op^m occasions somet^{imes}
a sense of disagreeable itch or prick^{ing} of the skin attend^{ed} somet^{imes} with miliar^y eruption. This results from all of its preparat^{ions}.
It is one of the most useful med^{icines} of the Materia Medica. It is excitⁿ in its primary action. In low or typhoid complaints, requir^{ing} a support^{ing} treat^{ment}
it exalts the arter^{ial} & nerv^{ous} syst^{em}. It is consequ^{ently} used with success in small doses, often repeat^{ed} in conjunct^{ion} or alternat^{ely} with other stimul^{ants}.
It relieves pain more speedily & effectually than any other med^{ic}. In cancer & other incurable diseases without Op^m life would be one scene
of torture. It produces sleep better than any other narcot^{ic} & is serviceable consequ^{ently} in delir^{ium} tremens in which it alone somet^{imes} affords
a cure, whenever in fact morbid vigilance exists not depend^{ent} on acute inflamⁿ of the brain. It produces sleep by direct influence
on the brain & 2^{dly} by allay^{ing} morbid nerv^{ous} irritatⁿ on which wakefulness depends. In the latter case combine with it camphor or
Hoffmann's anodyne. It is power^{ful} antispasmod^{ic}, hence its use in tetanus, colic, spasm of stom attend^{ed} gon^{orr}, dyspeps^{ia}
& cholera, spasm of uterus in nephritis & of the biliary ducts in the passage of calculi, & in various convulsive affect^s.
It allay^{es} gon^{orr} & local irritatⁿ, provid^{ed} there be not positive inflamⁿ. Hence used to quiet restlessness & cough, to relieve
nausea, tension & stangury. It suppresses morbid discharges by diminish^{ing} the nerv^{ous} energy on which secret & muscular energy dep^{ends}.
as in diarrh^{ea} with high actⁿ or organic derangem^{ent}, consumptⁿ, chronic catarrh, humoral aethoria in diabetes & haemorrh^{oids}.
from the uterus in combin^{ation} with other remedies. It produces perspiration, combin^{ed} with small doses of emetic medicines.

Aether Sulphuricus

Prep. Alcoh. Oiv. Sulphur. Oj. Potassa 3ij. distill. wat. ℥ 3ij. To 2 pint. Alcoh. in an open vessel add grad^y of ac. ℥ 3xviii. frequently, pour while hot into a tubulat^d glass retort, place on a sand bath & connect with a cold receiver, then heat quickly to boil. When $\frac{1}{2}$ pint of ethereal liquid has passed over, introduce grad^y into the retort the rest of Alcoh. previously mix^d with ℥ 3ij. acid. so as to replace as nearly as possible the liquid which distilled over. Continue the distillatⁿ till 3 pints pass over & till white vap^r appear in the retort. Add the potassa previously dissolv^d in the distill. wat. to the product obtain^d & shake frequently. After 24 hours pour off the supernat^t ether from the alk. solut. introduce it into a retort distill^d till 2 pints pass over of sp. gr. 0.750. Prop. Is colourless & very limpid, od. strong & sweet & hot pung^t taste. It is very volat^e, evaporat^s speedily in the open air with product of cold. Boils at 98° F. Its vapour as well as itself are very inflammable. hence great caution is need^d in bring^g it near a light^d candle. Its combustⁿ yields wat. & carb. ac. Wat. dissolves to its volume of ether, & ether takes up about the same proportⁿ of wat. sol. in all proportⁿ in Alcoh.

Med. Prop. Power^s of diffusⁿ stimulat^e though transient in its operatⁿ also antispas^m & narcot^c. the vap^r aris^g from a few teaspoonf^{ls} breathⁿ from a bladder produces a transient intoxicatⁿ resembl^g the effects of nitrous oxide, but danger^s if carr^d too far. Conjoin^d with laudan^m it is given in low fevers attend^d by subsultus tendinum. Ether is useful in nerv^s affect^s and^y if there be no inflam^m in catarrhal dyspnoea & spasmodic asthma its vap^r are inhal^d by hold^g in the mouth a lump of sug^r on which a few drops have been plac^d given as a cordial in nausea, cramp^s of Stom^{ach} & flat^{ul} colic. given alone or with spirit of serpent^m to relieve pain or spasm caus^d by the passage of biliary calculi. a teaspoonful with a glass of white wine allays seasickness. extens^d it is refriger^t or if its vap^r be repress^d it is rubefact^e & may even vesicate. us^d as a local refriger^t in strangulat^d hernia. drop^s in the ear it someti^m relieves earache immediately. In the proportⁿ of gr. ij spermace^ti to 3j. ether & rub^d in a mortar till the spermace^ti is dissolv^d we can incorporate ether with wat. by add^g the wat. in this state stir^d constantly & passing the mixtⁿ through mudin to separate the spermace^ti. dose gr. i. to a teaspoonf^l repeat^d till the requir^d effect is produc^d.

Spirit^s Aeth^r Sulphurⁱ Sulf^r Ether Oj. Rectif^d spirit Oij. mix them. sp. gr. 0.809. Edinburgh.

Spirit^s Aeth^r Sulphurⁱ Compo^s. Sulf^r Ether Oss. Alcoh. Oj. Ethereal oil ℥ 3ij. Mix them. odour of ether^d oil. taste burn^d & sweet. When pure it is entirely volatil^g by heatⁿ beyond of acid reactⁿ. By add^g wat. the ether^d oil is precip^d & the solutⁿ is made milky. In order to detect sophisticatⁿ by cast^d oil which is someti^m add^d to produc^e this effect. add the wat. shake well. allow to stand till tranquil & absorb with paper the oily glob^{ls} from the surf^{ce} & expose the paper to heat. If the globules are castor oil the oily stain remains if oil of wine they disappear. Med. Prop. stimulat^e Antispas^m & Anodyne. it is someti^m given with laudanum to prev^{nt} nausea by the latter in certain habits. It is particularly useful to compose nerv^s irritatⁿ & produce sleep.

Opium.

The concrete juice of the unripe capsules of Pap^{er} somnif^m of which there are 2 varieties the white & black poppy. The white is more properly the opium plant. It is an annual plant with a round, smooth, erect, glaucous & often branch^d stem 2 or 3 ft high & someti^m even 5 or 6 ft. leaves large lobed, alternate & closely embrace the stem. flowers terminal, large white or silver grey. the calyx falls when the petals expand. Though orig^l consid^d a native of Asia it is found wild in south^{ern}

Med Prop^s of Opium Continued. It is pre-eminent as a diaphoretic none so powerful and so much employed for this purpose as the Tubris Speacuanhae et Opii as in rheumatism, bowel affect & ceteris of pulmonary disease from its mucous property is often prescribed to meet mucous radical in the same disease & there are few diseases which do not demand its use. It may however do injury if ill used. It is contraindicated by a high state of inflammatory excitement which should be reduced before resort to op^m. & if there is doubt of its effect give it with tartariz. antimony or ipecac^a which not only it is a stimulant & increase its tendency to the skin. Also by inflammation of the brain or strong determination of blood to the head by deficient secretⁿ from inflamed mucous mem^{br}. by constipation of bowels under spasm as in colic. The dose of no one is more variable accord^g to the habits of the patient & the complaint. In catarrh & diarrh^a of $\frac{1}{4}$ or $\frac{1}{2}$ gr is an efficient dose while in tetanus & the nervous affect it has been given without effect in the enormous quantity of 3ij in 24 hours. A case of cancer of the uterus under Dr Merges & de Roche of Dr took in tinct. or subst^{ce} in equivalent to more than 3ij daily. The medium dose is gr j. produces the anodyne & soporific effects of the med^l operates best given by the rectum in obstinate violent & painful nephritic & uterine affect^s, stranguy from blisters dysenteric tenesmus. it is used as a suppository or enema with lam. annos. flax seed tea, mucilage of gum arabic starch prep^d with h^{er} wort or the like. the gr^d rule is 3 times the dose given by the mouth this is not always true. sometimes the rectum is more sensible to its impression again in an individual long accus^{ed} to use op^m whose stom. would be hardly susceptible to its impress. the rectum might not have lost in a proportionate degree its absorb^{er} powers. Its liquid prep^s are ad^o to collyr. in ophthalm^a. injectⁿ in gonorrh^a & various lesions as in gout, rheumat^{ism}. the powder made into plaster or cataplasma is used as a local anodyne. when given in pill, the pill should be formed from the powder being more sol. in the liquor of the stom.

Sinectura Opii. This med is particularly adapt^d to cases where op^m is demand^d & is often more effic^{ac} than op^m in solut^o from its lesser strength while it is superior to weaker preparat^{ns}. Prep. powder op^m 3ij ss. dilut^d with Aleph. Oij. macer^{at} 14 days, express & filter through paper it is used in all cases where op^m is call^d for. long kept & occasion^{ly} expos^d to the air the aleph wraps^g the tinct. becomes thick & its strength is much increased death in infants has often result^d from the use of laudanum no longer clear.

(Extract.) ^{The alkalies & all vegetable salts contain tannins & gallic a.c. are strictly incompatible & the precipitate the active ppt. the latter form^d with tannin is} ^{with op^m}

Treatm^t of Op^m in poison^s doses. Evacuate the stom by a strong purgative not at haul by active emetics, as tartariz. antimony. sulph^{ur} of zinc or sulph^{ur} of copper, conjoin^d with ipecac^a. emet^{ics} are preferable if op^m has been swallow^d in solut^o promote the operatⁿ of the emet^{ic} by warm drinks, irritatⁿ the fauces keep^g the patient in motion even by dash^{ing} cold water on the head & should^d or pass a current of electricity through the brain. The debility sus^{tain} an evacuation of the stom is often alarm^{ing}. counteract it by gin^d internally earl^y of ammonia or a rostat^{ion} of ammonia with wine wh^{ich} apply sinapisms stimulant frict^{ions} externally finally resort to artificial respiration which by furnish^{ing} arterial blood to the heart & thence to the whole system enables it somet^e to rise above the repress^{ive} influence of the poison. Codia ^{in op^m} exactly in combination with meconic ac. & is extract^d with morph^{ine} in the prep^d of the muriate crystal octohedral skin bol^{us} ether & bol^{us} wat^{er} med in alk^{ali} sol^u. does not turn red with nit^{ric} ac. nor blue with sesquioxide of iron by which test it is easily separat^d from morph^{ine}. It acts upon the nerv^{ous} syst^{em} & seems particl^{arly} direct^d to the great sympathetic heart had little effect over the pangs of the back & extremities suppl^y by the spin^{al} nerves. Dr Barbier of Amiens has ad^{vert}ed act^{ion} over the economy & is among those ppt^s in which op^m depends for its action.

But ¹alcoh. is often useful in prepar^g those times in which a larger proportⁿ of wat^r is need^d as a menstr^m as in the extract of the active ppl^s of some plants, besides this advantage it is cheaper & less stimulat^g. When must^l is used or nearly so in wat^r as resin, guaiac, camphor & the essent^l oils, are to be dissolv^d alcoh. is far preferable to the dilut^d alcoh^m in which the wat^r is not only useless as a menstr^m but actual^l interferes by its affinity for the alcoh. with its solvent powers. For intern^l use brandy is pref^d to other liq^s from its great^r purity, also in cases where cerac^l stimulus is required in small bulk. In chronic diseases its use should be avoid^d but the patient can tract intern^l mal^l is Alcoh. used externally to produce cold by evapⁿ or to stimulat^g when its evapⁿ is repress^d. In the early stage of exoriat. from pressure in protract^d diseases a mixtⁿ of equal parts rectif^d spirit & white of egg frequently applied by a fine brush or feather & renew^d as it dries till an albumin^l coat^l is form^d has prov^d an excell^t remedy. The wines are gen^ll^y pref^d for internal use their action being + permanent & less stimulat^g & diff^l fusible; they also contain some nutrit^l. The vine is supposed to have originat^d in Asia has been cultivat^d since the remotest antiqu^y in Europe & north Africa & is now spread over the whole world. Wine is the ferment^d juice of its fruit the grapes & consists of ppl^s of wat^r & alcoh. it contains besides sugar, gum, extract, colour, matt^r, tannic, mal^l & carb^l ac^l, bitart^l of potassa (tartar), tart^r of lime, vol^l oil & oenanthe & ether. The bouquet of wine is supposed to depend on the vol^l oil. Oenanthe eth^r is a mobile, colourless, oily subst^l of a spec^l & unpleasant smell. Upon these diff^t subst^l depend the peculiar diff^s of wines on sugar their sweetness, tannic ac^l, their roughness, carb^l ac^l, their sparkl^g qual^{ty}, &c. Wines vary much in the proportⁿ of alcoh. which they contain. The Strongest Port^l has 25, 83 in 100 parts while inferior Rudesheimer has only 8, 35 to 100 parts. The habitual use of wine is ± pernicious. As a med^l it is stimulat^g & antispas^m alone or with bk or opium it is often our main dependence in certⁿ stages of typh^l & in extensive ulcer & gangrene. If in low fevers, it invigorates the pulse lessens its frequency, mitigates delir^l & produce a tend^r to sleep, continue its use if it quickens the pulse, augments heat & thirst, prod^l restlessness or increase delir^l discontinue it. Good cherry being free from ac^l is well adapt^d to delicate stom^l, especial^l if there be a tend^r to dyspeps^l activity. Good Madeira is a generous wine, well adapt^d to reconvalesc^l & debilitat^l constit^l & sustain^l the sink^g energies of Ad agent is slightly ac^l. Genevieve is of medium strength & agrees with most stom^l. Port is a powerf^l tonic & stimulat^g & is less heat^g than the above is an aperient & diuretic. The disadvantage of light wines is that their lack of body renders them liable to sour on the stom^l. The dose of wines is very variable in low fevers it is administ^d pure or in the form of Wine Whey to the extent of a bottle or more in 24 hours. Prep^d Wine Whey. add a gill or ½ pint of wine to 1 lb of milk, strain without pressure, & sweeten the clear whey with loaf sugar it is a safe & grateful stimulat^g in typh^l & other fevers which after depletion may tend to defic^t act^l & be accompanied by dry skin. Med Prop^s. Wine acts as being absorb^d & mix^d with the blood. It is useful where from exhaust^l the syst^m has need^d of humors & support, as in low forms of typh^l, in inflammatory diseases which have reach^d the suppurat^l stage, in gangrene, in drunkards who require a certⁿ amount of stimulat^g in order to reach their normal stⁿ & are of strength. In these latter we may bleed in inflam^l diseases, while at the same time we give alcoh. to support the syst^m. Epidemic influence somet^e produces much the same effect on the syst^m as habit^l intoxicat^l. When under the force of alcoh. the pulse remains slow, heat diminishes, skin becomes moist, delirium decreases, continue. When mal^l liq^s are stimulat^g & nutritive than wines. They contain a bitter narcotic the contrary occurs stop its use & ppl^s hops which are soothing to the brain inducing sleep.

Pharmacopœia consists of equal measures of officinal alcohol and water. Uses of diluted alcohol. Importance of knowing whether a tincture is prepared with *alcohol* or *diluted alcohol*.

Distilled liquors sometimes used internally. Brandy preferred. Circumstances which justify its employment. External use.

Fermented liquors generally preferable as stimulants. Reasons for this preference.

Wines. Origin and composition. Proportion of alcohol existing in them. Madeira, Teneriffe, or Sherry, generally preferable as stimulants; Port wine, when an astringent is indicated. Disadvantages of the light wines. *Wine whey.* Mode of preparation. Uses. Mode of preparing *spiced wine.* Uses.

Multiliquors. Peculiarity of composition. Under what circumstances preferable to wine. Porter or ale better than beer.

Therapeutical applications of alcoholic liquors. Evidences of their favourable and unfavourable action.

SULPHURIC ETHER.—ÆTHER SULPHURICUS. U.S.

Mode of preparation—form—colour—specific gravity—taste—odour—facility of evaporation—effects of evaporation—point of ebullition—inflammability—practical caution—relations to water and alcohol.

Effects on the system. Consequences of its inhalation. Therapeutical applications. Dose, from fʒss. to fʒj. with sweetened water. Mode of incorporating it with water by means of spermaceti. Mode of inhaling the vapour. Circumstances under which it may be usefully inhaled. External uses of ether.

Spirit of Sulphuric Ether. A mixture of ether and alcohol—officinal—seldom used.

Compound Spirit of Sulphuric Ether.—*Spiritus Ætheris Sulphurici Compositus, U.S.* *Anodyne Liquor of Hoffmann,* or more briefly, *Hoffmann's Anodyne.* Mode of preparation. Odour. Mode of ascertaining its genuineness. Therapeutical uses. Dose, from 30 drops to fʒj. in a wineglassful of sweetened water or mucilage.

OPIUM.

Concrete juice of the capsule of *Papaver somniferum.* General character of the poppy. Varieties, *black* and *white poppy.* Where cultivated.

Shape and size of the mature capsules—consistence—internal structure—taste—uses—modes of preparation.

Seeds destitute of narcotic properties. Fixed oil obtained from them. Uses of the oil.

Countries in which the poppy is cultivated for the sake of opium. Mode of obtaining opium. Whence imported into the United States. Commercial varieties of opium. Smyrna opium generally used.

Smyrna opium. Shape and size of the masses—external appearance—consistence—colour of the surface—colour when broken—fracture in the soft and perfectly dry state—odour when broken—relative value.

Constantinople opium. Shape of the pieces—relative value.

Egyptian opium. Shape and size—external appearance—colour—fracture—odour—quality—relative value.

Properties of opium—odour—taste—effect of long chewing—colour—mode of pulverizing—character of the powder—inflammability—relations to water and alcohol—signs of inferiority.

Chemical constitution of opium. Most interesting ingredient, *morphia.* State in which this exists in opium.

Narcotina, another ingredient. Its form—sensible properties—effects of heat—relations to water, alcohol, and ether—influence of its combination with acids—effects on the system—mode of separating it from opium or morphia.

Besides these principles, opium contains at least one other alkaline substance named *codeia,* gum, extractive, resin, caoutchouc, a volatile principle, &c.

Effects of opium on the system. Duration of its primary action. Secondary effects. Influence over the secretions, the peristaltic motion, pain, spasm, and other forms of nervous irritation. Effects in very large doses. Poisonous effects. Treatment of these. Peculiar effects of opium on certain constitutions. Therapeutical indications which it is capable of answering. Contra-indications. Circumstances modifying the dose. Cases in which the medicine is best given by the rectum, or applied to the skin.

Given in substance, tincture, or in the form of some preparation of morphia. When in substance, usually in the form of pill. Mode of preparing the pill. Medium dose, 1 grain.

Tincture of Opium.—*Tinctura Opii, U.S.*—*Laudanum.* *Thebaic tincture.* Advantages of this form. Mode of preparation. Dose, equivalent to one grain of opium, 13 minims or 25 drops. Caution in relation to laudanum long kept. Mode of applying it externally.

Camphorated Tincture of Opium.—*Tinctura Opii Camphorata, U.S.*—*Puregoric elixir.*

Ingredients. Sensible properties. Two grains of opium in every fluidounce. Advantages of this preparation. Dose, for the purposes for which it is ordinarily given, fʒj.

Acetated Tincture of Opium.—*Tinctura Opii Acetata*, U. S. Substitute for *Acetum opii* or *black drop*. Mode of preparation. Dose, equivalent to one grain of opium, 10 minims or 20 drops.

Vinegar of Opium.—*Acetum Opii*, U. S.—*Black drop*. Mode of preparation. Advantages. Dose, equivalent to one grain of opium, 7 to 10 drops.

Morphia. Mode of preparation—form—colour—taste—effects of heat—relations to water, alcohol, ether, the fixed and volatile oils, the acids, and the inorganic alkalis—tests—state of combination in which it is employed.

Sulphate of Morphia.—*Morphiæ Sulphas*, U. S. Mode of preparation—form—colour—solubility in water.

Acetate of Morphia.—*Morphiæ Acetas*, U. S. Form—solubility in water.

Muriate of Morphia.—*Morphiæ Murias*, U. S. Form—solubility in water.

Peculiar physiological effects of morphia and its preparations. Cases in which they are preferable to opium. Dose, one-sixth of a grain, equivalent to one grain of opium. Given in pill or solution. There is an official solution of the sulphate.

Solution of Sulphate of Morphia.—*Liquor Morphiæ Sulphatis*, U. S. Proportion of the sulphate to water, 1 gr. to fʒj. Dose, from fʒj. to fʒij.

External use of the salts of morphia. Mode of application. Quantity applied.

LACTUCARIUM. U. S.

Inspissated milky juice of *Lactuca sativa*, or garden lettuce. Mode of collection. Properties—form—colour—odour—taste—relations to water—chemical constitution. Effects on the system. Practical application. Dose, 5 to 20 grains.

HENBANE LEAVES.—HYOSCYAMI FOLIA. U. S.

HENBANE SEED.—HYOSCYAMI SEMEN. U. S.

Leaves and seeds of *Hyoscyamus niger*—a biennial, herbaceous plant—indigenous in Europe. Leaves of the second year preferred.

Odour of the recent and of the dried leaves—taste—relations to water and alcohol.

Virtues ascribed to a peculiar alkaline principle called *hyoscyamia*, but uncertain.

Shape, size, and colour of the seeds.

Effects of hyoscyamus on the system. Points in which it differs from opium. Effects of overdoses. Effect on the pupil. Therapeutical applications. Dose of the leaves, 5 to 10 grains. These rarely used. The medicine is most commonly employed in the form of extract.

Extract of Henbane.—*Extractum Hyoscyami*, U. S. The inspissated juice. Mode of preparation—consistence—colour—odour—taste. An alcoholic extract also directed by U. S. Pharmacopœia. Dose of either, 2 or 3 grains, repeated frequently till the medicine produces some effect.

Tincture of Henbane.—*Tinctura Hyoscyami*, U. S. Dose, fʒj.

HOPS.—HUMULUS. U. S.

Fruit or strobiles of *Humulus Lupulus*. General character of the plant. Indigenous in Europe and North America. Mode of collecting and preparing the strobiles for market.

Properties of hops—form—colour—structure—texture—powder about the base of the scales—odour—taste—relations to water and alcohol.

Active ingredients, a volatile oil and a peculiar bitter principle found most abundantly in the powder about the base of the scales. The powder is called lupulin.

Lupulin.—*Lupulina*, U. S. Mode of collection—form—colour—odour—taste—effects of heat.

Effects of hops on the system. Remedial applications internal and external. Given in infusion and tincture. Dose of the infusion, made with half an ounce to a pint of water, fʒij.—of the tincture, from fʒj. to fʒss.

Lupulin used in substance and tincture. Dose, 6 to 12 grains, given in the form of pill,—of the tincture, fʒj. to fʒij.

CAMPHOR.—CAMPHORA. U. S.

Product of *Camphora officinarum* (*Laurus Camphora* of Linnæus)—an evergreen tree, indigenous in China and Japan. Mode of obtaining the camphor. State in which it is brought into market. Mode of refining. Form of the resulting cakes.

Properties of camphor—colour—translucency—texture—feel—effects of alcohol on the facility of pulverization—odour—taste—specific gravity—volatility—effects of heat—in-

Tinct^a Opii Camph. ^{12a} Prep. fine Op^m Benzoin. ac. āā ʒj. oil of anise ʒ ʒj. Clarif^d Honey ʒij. Camphor ʒij. Dilut. the
hol. Oij. Macerate 14 days & filter through paper. It is quite transparent hav^g the appear^{ce} of dark Madeira wine formerly
liquorice was add^d to it but has been retrench^d from it's harshness & serious mistakes between it & Laudanum. This prepⁿ
is admirably adapt^d to children from the mildness of it's operatⁿ. Dose for infant 5 to 20 drops, for ad^{lts} ʒ ʒj to ʒ ʒij
Tinct^a Opii Acetata a substitute for black drop of which the strength was found to be very variable while the
tinct^a acetata seem^s to possess all it's virtues. The black drop being however a good prep. was restor^d to it's official
rank but so modified as to ensure it's more even prep. while the Tinct^a Acetata found also to be an excell^t prep
was retained in the catalogue. Prep. Op^m ʒij. Vinegar ʒ 3ʒij. Alcohol. Oss. Rub the op^m with the vinegar, add the alcohol
macerate 14 days, express & filter through paper. It can be taken where laud^m or op^m produce disagreeable effects as nau^s
vomit^s headache or great nervous disorders. The tinct^a of the salts of morphia into use has however nearly supersed^d
the necessity of this prep.

Acetum. Opii. Op^m in coarse powder ʒviij. Nutmeg in coarse powder ʒiss. Saffron ʒss. Sugar 3ʒij. Dist^d vinegar ʒss. Digest
the Op^m nutmeg & saffron with dist^d vinegar ʒss. on a sand bath with a gentle heat 48 hours & strain, repeat on the residue with
the same quant^y vineg. for 24 hours. Then put the whole in a distill^d apparatus & return the filt^d liquor, till it comes away quite clear
when filt^d it ceases add vineg. to what remains in the apparatus until the whole quant^y of filt^d liquor equals Oij. lastly add sugar
wash by a water bath to 3 pints & 4 fl^l ounces. Dist^d Acet^a may be substituted for dist^d vinegar. The chief advantage of black
drop over Laudanum is probably that the meconate of morphia is changed by the acetate into the acetate. It can be taken
by certⁿ patients or in certⁿ peculiarities of disease in which laud^m or op^m produce the disagreeable sympt^s before allud^d to nausea
headache etc. It's strength is double that of laudanum.

Morphia. Prep. Sliced op^m ʒij. Dist^d wat. Alcohol. āā ʒss. Solⁿ of Ammonia ʒvi. Macerate the op^m with Dist^d wat. 24 hours, then
wash it with the hand digest 24 hours & strain, repeat the operatⁿ twice on the residue with dist^d wat. & strain. Mix the infusions
wash^d to 6 pints & filter. then add 1 1/2 pints alcohol. then ʒ ʒij solⁿ of ammonia previously mixed with Alcohol. Oss. after 24 hours add the rem^a
ain^d solⁿ of ammonia with Alcohol. Oss. as before, set the liquor by 24 hours for crystallizⁿ. Purify the cryst^s by boil^g them with 2
pints of Alcohol. till dissolv^d, filter while hot through a animal charcoal & set by to crystal^{ize}. Prop^s small colourless shin^y crystals
inodorous bitter. expos^d to a gentle heat it loses it's wat^r & crystaliz^s & becomes opaque, further heatⁿ it melts to form a yell^w
liquid which becomes white & crystal^{ine} on cool^g; heatⁿ in the open air it burns with a bright flame, at red heat it is wholly dissipated.
insol. or nearly so in cold wat^r. sol. in 100 parts boil^g wat^r slightly sol. in cold alcohol. freely in boil^g alcohol. is deposit^d on cool^g. Test^s on phos^{ph}
or volatile alk^{ali}. It forms salts with the acids which are gen^lly soluble & decompos^d by the alkalis. It's col^r in the solⁿ of potassa, soda, ammonia
Tests Morphia with salts in contact with nitric ac. assumes a blood red col^r which turns to yell. as to a solⁿ of iodic ac. or an acidul^d
they red^d in the liquor & set to a free Morphia acet^a & oxalate assume a fine blue col^r with the sesquichloride of iron & the salts of the
sesquioxide the same is true for the other salts if previously decompos^d by an alkali. Pseudomorph^a which is not pure produces the red
& blue colours under simil^r circumstances, an important fact in medico-legal cases. Morphia is precipitat^d from it's solⁿ by
potassa or soda & is redissolv^d by an excess of the alkali. Anhydrous Morphia consists of 35 squi^d carbon, 20 hyd^{ro}g^{en}, 6 oxyg^{en} &
1 nitrogen. to which add in the crystals 2 of water.

nausea, sometimes it produces sleep, pulse is not affected the bowels are rather relaxed. Its effects pass off in 5 or 6 hours.
In Poison: Does it produce cardialgia, throat, nausea, vomit, sense of strangulation, anxiety, faintness partial or complete blindness with dilatation of pupil, vertigo, delirium sometimes furious sometimes whimsical in its character. Tremors in the limbs, palsy, stupor & convulsions. The patient may recover from all of these symptoms but death has often followed them. Treacher's extract of the stomach by emetics the stomach pumped in mania & epilepsy dependant on irregular nerve action used also in neuralgic & rheumatic affects. Dysmenorrhoea, syphilitic pains cancer sores, & especially spermatic asthma. The root quickly dried, cut in pieces & beaten so as to loosen their texture as well as the leaves dried afford relief in spasmodic asthma when smoked in a common tobacco pipe. Its use in this manner is dangerous.

Extract^m Stram^m Sem^s. Stramonium freed ground to powder to 1/2. Dilute Aleoh. 6. Rub the powder with Aleoh. Oss. introduce the mixt. in a displaced apparatus, pour gradually on it Dilute Aleoh. till the liquid passes colourless. Distill off the Aleoh. from the fluid by a proper consistency. Ext^m Stram^m Sol^m. Stramonium leaves to 1/2. Bruise them in a mortar, sprinkle a little water on them, express the juice, heat to boil & strain & evaporate to proper consistency. Unguent^m Stramonii. Fresh Stramonium leaves cut in pieces to 1/2. Boil to 1/2. Yell. Wax 1/2. Boil the Stramonium in the oil till they become friable, strain through linen. Add the wax previously melted & stir till cold. This prep. is externally used as a cathartic or in the treatment of venereal ulcers, inflammations, swellings of the mammae & painful hemorrhoids. It is also used in the treatment of the eye.

Guilemaria.

A climbing shrub, slender, round, branched, woody stem 6 to 8 ft. high. Leaves alternate, pointed, green, smooth & velvety. Some near the top of the stem have lateral projection at their base giving them a hastate form. The flowers are in clusters opposite the leaves, purple or violet blue color. Berries oval, bright scarlet remain long after the leaves are fallen. Found in Europe & America in damp & sheltered places, on the banks of rivers among thickets bordering natural meadows. Blooms from June to August. The best is that grown in high & dry situations. It is gathered in autumn after the fall of the leaf. The bark & the twigs should be chosen. The dried twigs are of various lengths, cylindrical, thick as a goose quill, wrinkled gray & the bark consist of a thin bark, a ligneous part & an internal pith, inner though in the recent state it is a green brownish green. A peculiar musky smell. Taste 1st bitter after 2nd sweet. Hence its name. Will extract their virtues. Solania is obtained by precipitating the decoction of bitter sweet by ammonia or magnesia, wash the precipitate with cold water & treat it with boiling Aleoh. the alkaline phlegm deposit on cooling & still further by evaporation it is in the form of white opaque powder or of delicate acicular crystals, insoluble in Aleoh. & thoroughly so in water neutralizes the acids. 1 gr. kill a rabbit in 6 hours. Med. Prop^s. Guilemaria is feebly narcotic, increases the secretions particularly of the skin & kidneys. During its operation the face & hands often become a dark purplish color & the circulation is impeded. Its narcotic effects become apparent only in large doses. It is employed in scaly & cutaneous diseases as lepra, psoriasis, & pityriasis combined with the antimonials. Useful in mania connected with strong venereal propensities. Prep^m. Guilemaria in coarse powder to 1/2. with water to 1/2. let stand 24 hours put it in a displaced apparatus & distill off the water till the residuum is thick. Work with the purpose of Guilemaria heat the fluid to boil & strain & evaporate to a proper consistency.

Morphine Sulphas. Morphⁿ in powder 3j. Dist^d Wat^r Oss. Dilut^d Sulph^a ac. Q.S. Mix the morphⁿ with the wat^r drop in the acid with care stir till the morphⁿ is saturat^d & dissolv^d. Evap by a wat^r bath so as to crystalize on cool^d. Dry the crystal^s on bibul^u paper. White minute feathers y^e crystal^s. Sol in cold wat^r & twice their weight boild^d wat^r. Dose $\frac{1}{2}$ to $\frac{1}{4}$ gr in pill or solution.

Morphine Acetas. Morphⁿ in powder freed from narcotina by boil^d with sulph^a then 3j. Dist^d Wat^r Oss. Acet^a ac. Q.S. Mix the morphⁿ with the wat^r drop in the ac. with care stir^d until the morphⁿ is saturat^d & dissolv^d. Evap by a water bath to the consist^{cy} of syrup Dry by a gentle heat & rub to powder. It crystalizes in slender needles united in fasciculi. Sol in wat^r less so in alcoh^{ol}. As above by evapⁿ but y^e result is not entirely sol in wat^r to effect this add a little Dist^d Vinagr^{um}. $\frac{1}{2}$ gr = 192 op^m. Dose $\frac{1}{2}$ to $\frac{1}{4}$ gr in pill or solution. It is frequently used externally sprinkled on blist^{er} surf^{ce} to obtain its effects on the syst^{em}.

Morphine Murias. Morphⁿ in powder 3j. Dist^d Wat^r Oss. Muriat^a ac. Q.S. Mix the Morphⁿ with the Wat^r then carefully drop in the ac. stir^d. Kill the Morphⁿ is saturat^d & dissolv^d. Evapⁿ by a water bath so that it may crystal^{ize} on cool^d. Dry the crystals on bibulous paper. Should it be col^d purify by animal char coal after two crystalizat^{ions}. It crystalizes in tufts of feathery acicular crystal^s. It is white, ind^{ist}, bitter. Sol in 16 parts wat^r at 60° & in its own weight at 212°. It is sol in alcoh^{ol}. A saturat^d solutⁿ in boild^d wat^r forms a solid crystal^{ine} mass on cool^d. Dose $\frac{1}{2}$ gr = 92 op^m. It is less used in the U.S. than the sulph^a salt.

Med Prop^s of Morphⁿ & its prep^s. Morphⁿ is the chief if not the only narcot^{ic} ppl ^{of op^m} though it differs somewhat from it in its action, the diff^{er} is probably from the pecul^{iar} state of combinat^{ion} in which Morphⁿ exists in op^m. This is partially prov^d by the fact that long before the discovery of the alkali simil^{it} modificat^{ions} were made in the prep^s of op^m by add^{ing} vinegar, lemon juice, or other vegetable acid being mixed in wat^r. It is less certain in its effects than its saline comp^o. Its actⁿ depend^s on the absence or presence of ac. in the stom^{ach}. The salts are therefore prefer^{ed} they have the adv^{antage} support^s & diaphor^{ic} prep^s of op^m are less stim^{ul}, less constip^{ant}, less apt to cause headache, nausea &c. & are only more acceptable to the stom^{ach} will be reliev^{ed} som^e when op^m or laud^{um} will not. They are applicab^{le} to the relief of pain, quiet restlessness, promote sleep or allay nerv^{ous} irritat^{ion}. But are less effect^{ive} than op^m in nerv^{ous} discharges or as stim^{ul} in low forms of disease. It is very useful in mania of drunk^{en}. They are very conveniently applic^{ed} external^{ly} sprinkl^d in Stimes the odin^g dose on a blist^{er} surf^{ce}. Thus applic^{ed} they relieve vis^{cer}al neuralg^{ic} pains & control obstin^{ent} sickness of the stom^{ach}. When intend^d to act locally apply the med. as near as possible to the affect^{ed} part. If on the whole syst^{em} apply to the Epigastrium given in doses not large enough to prov^{oke} sleep, they cause a disagreeab^{le} emet^{ic} of brain, almost amount^{ing} to delirium. This subsides on increas^{ing} the dose. pr^ovision in overdos^e. Its effects are not however proportionate with a quant^{ity} of op^m equiv^{alent} in anodyne effect. Treatm^{ent} the same dose of the alkali or of the salt $\frac{1}{2}$ gr = 192 op^m. Loiquor Morphⁿ Sulphatis. Sulph^a of Morphⁿ gr viij. Dist^d weak. Oss. Dissolve the sulph^a in the Wat^r. This prep^s keeps long unchang^{ed}. It enables the physician to prescribe also minute doses, which owing to the energy of the prep^s of Morphⁿ is often necessary full dose for adult $\frac{1}{2}$ j to $\frac{1}{2}$ j is $\frac{1}{2}$ to $\frac{1}{4}$ gr of the sulphate.

Lactucarium.

Mode of collection. When the stem is 1 ft high cut off the top. & suck the exud^{ed} juice by cotton or sponge, thence press it into a cup & expose it until it concretes. repeat 5 or 6 slicings. It may also be collect^{ed} by the hives as it flows from the incisions. Collect the milky juice on pieces of woven cotton $\frac{1}{4}$ y^d square, place these into a vessel contain^{ing} a little wat^r & allow the impregn^{ed} wat^r to evap^{or} in shallow dishes at the ordin^{ary} temp^{erature} of the air. The last is left in the form of an extract, being destitute of the cantchou^g found in the concrete ju^{ice}.

Stom & bowels susceptible to impress^s the whole nerv^s syst^m prostrate feeble pulse, cold & clam^r the
subul^s h^s in convuls^s death. Treat^r evacuate the stom by met^s or the stom pump, cleanse the
bowels by purgatives & enemata. Accord^g to Runge lime water or the alk^{ie} sol^r render the poison^s matter remain^g
stom intact. Dissect shows inflam^t of stom & intest^s. the body soon begins to b^e chiefly swells, bec^{es} cov^d with livi
spots, while dark blood flows from the mouth, nose & ears. Med in the advanc^d stages of whoop^d cough. one of the best
remedies in neuralgia. used in convuls^s dep^t on scrof^{lous} irritatⁿ. in chorea, epileps^y, hydrophobia, mania, paralysis
a marasmod^{us} & neural^{gic}. root, oblat^e in intermitt^g dyspeps^y & jaundice. Strangulat^d hernia a preventive of occlusion
was in Europe to dilate the pupil in the operatⁿ for cataract. In partial opacit^y of the crystal^l lens or when from
inflam^t of the iris there is danger of permanent closure of the pupil ask aq^{ueous} infusⁿ or a solⁿ of the extract drop^d into
the eye or a little extract itself rub^d on the eyelid may prove useful. The decoctⁿ or extract appl^d to the neck of the
uterus hastens tedious labor, depend^g on rigidity of the os uteri. Spasmod^{ic} strict^{ure} of ure^{thra}, neck of bladder &
sphincter ani & painful uterine affect^s have been reliev^d by local use of the extract. Stru^{cture} in longis is inject^d
in the latter use it has reliev^d strangulat^d hernia. Inhalatⁿ of the vap^r of the decoctⁿ in the proportⁿ of leaves 3ij. or
aqueous extract gr. xv. to wat^r Oj. relieves spasmod^{ic} asthma. The fresh leaves int^r & when fresh in a strong decoctⁿ of
Op^{um}. Dried & used as cigars relieve phthisis. Dose for a child $\frac{1}{8}$ to $\frac{1}{4}$ gr. Extract^m Belladonnae. leaves of belladonna to j
bruise them in a stone mortar, sprinkle with wat^r, express the juice, heat to boil^d strain & vap^r to a proper
consistence. Extract^m Belladonnae Alcoh^{ol} prepared in the same manner as Extract^m Hyos^{cymine} Alcoh^{ol}. See page 226.
Emplastrum Belladonnae. Resin Plaster 3ijj. Extract of Belladonna 3jss. add the extract to
the plaster previously heat^d by a water bath & mix them.

Stramonii Folia, Radix et Semen.

An annual plant of rank, vigorous growth 4 to 5 ft high, grow^s in rich soil as high as 6 ft. root large whit^e with numer^s
fibres, stem erect, round, smooth, shiny simple below dichotomous above with numer^s branches, leaves 5 or 6 inches long
ovate triang^{ular} from toothed at edges, dark green above, pale beneath, flowers large, solitary, white. fruit large fleshy
ovate, four celled capsule cov^d with sharp spines, contain^g numer^s seeds. its origin is unknown. European^s refer^{re} it to
North America & we to Europe or the interior of Asia. Nuttall considers it a native of S. America or Asia.
In the U. S. it is found in the vicinity of cultivat^d fields & the places of refuse deposits of towns &
villages & flowers from May to July or August. Its vicinity is detected by the rank odor which it spreads
about. In the U. S. it is known as the James Town Weed vulgar^y its name weed from its hav^g been noticed in
that neigh^{borhood} in Virginia. called the mandrake in Great Britain. The fresh leaves bruise & sm^{ash} a fetid
nauseo^{us} odor, which they lose upon drying. Taste bitter & nauseous. Wat^r & Alcoh^{ol}. extract their virtues.
The seeds are small, kidney shape, dark brown nearly black, inod^{orous} bitter & nauseous taste with some acrimony.
They are the most active part of the plant. Wat^r & Alcoh^{ol}. & extract their virtues. Med Prop^s. a powerful narcotic
in doses suffic^{ient} to affect the syst^m. it prod^{uces} vertigo, headache, dimness^{or perversion} of vision, confusⁿ of thought even delir^{ium} or
intoxicatⁿ. derang^{ing} sexual are experie^{nced} about the fauces, oesophagus & trachea. of less increas^e to a feel^g of suffocatⁿ &

3 When the plant begins to turn yell separate the leaves & the bark of the stem macerate 24 hours in wat. then boil 2 hours. strain off the clear dewet. through a sieve with pressure & expel by expos. the result is a strong extract or costs $\frac{1}{2}$ as much.

Prop. is in small irreg. reddish brown lumps, narrow & od. bitter. In these prop. it bears considerable resemblance to op. does not attract moisture from the air forms a deep brown infus. with wat yield $\frac{1}{2}$ its weight, the remainder being wax, resin & caudex. Transp. a bitter crust. ppl. sol. in alcohol & hot wat. slightly so in cold wat. insol. in ether. with alkali react. thought to be the active ppl. mannite, asparagine, a free acid, a brown col. subst. resin, cerin, myricin, albumen & gum, nitrate of potassa, chloride of potass. phosphate of lime & magnesia.

Med Prop. possesses the anodyne prop. of op. without its disagreeable effects, according to Dr. Francois a French Dr. it is sedative, & excites the capillary circulation & the temp. with disturb. the function as op. it allays cough, & quiets nervous irritat. its use is similar to that of op. its anodyne & soporific effects but cannot be administered from its odorousness of the patient it is however an uncertain med.

Hyoiseyami Folia et Semen.

A biennial plant, long taper. whit. fleshy, branch. root round, part of stem erect, round, branch. 2 or 3 ft high. well furnished with large oblong leaves soft to the touch. Stem & leaves are hairy, viscid sea-green col. flowers terminate the branches & hang down at an obscure yell beautifully variegated with purple veins. fruit a globose cell capsule, & by a lid contains numerous seeds. The whole plant has a rank offensive smell. it is found in the north & east sect. of the U.S. in grave yards, old gardens & the foundations of ruined houses. it is rare in this country. flowers in June & July all parts of the plant are active, the leaves & seeds of the 2nd year leaves are stronger & the 2nd year root more poisonous. The leaves are gathered soon after the plant has flowered.

Prop. The root leaves & seeds have a strong disagreeable narrow od. like tobacco. taste mucilag. & slightly acid. dried they have little smell or taste. They burn with a crackling noise emit a strong od. dilut. alcohol extract its virtues the infus. is pale yell insipid of narcotic od. Hyoiseyamiae supposed to be the active ppl. is in colourless transparent silky needles, odourless, acid having weak taste, slightly sol. in wat. very sol. in aleo & ether. it is quickly altered by contact with wat & an alkali & heat with potassa or soda is decomposed, disengag. ammonia, neutralizes acids, forms crystal. salts which are as well as itself very poisonous. The smallest quant. introduced into the eye produces a long continued dilatation of the pupil. The seeds are small round compressed, kidney shaped, wrinkled gray or yellow gray, odour of the plant & oleaginous bitter taste. Med Prop. Narcotic in moderate doses it gently accelerates the circulation, increases pul warmth gives a sense of heat in the throat & shortly induces sleep. This is sometimes accompanied by vertigo, pain in the head, dilated pupil. it is sometimes diuretic, diaphoretic & produces even profuse eruption. it does not like op. counteract, often proves laxative. In overdose it is a poison producing death. Toxicological treatment same as op. after sweating the bowels give acid drinks as lemon juice, vinegar &c. while the leaves prove fatal to birds & dogs they are taken with impunity by horses, cows, goats, swine & sheep. The prop. of dilat. the pupil is taken advantage of by surgeons in operation for cataract in the prop. 1 gr. to 2 gr. Wat. apply for the greatest effect to 4 hours after the applicat. it subsides in 12 hours & its applicat. are the same as op. but it is not used if the latter is admissible. In Europe where the fresh leaves can be easily had it is used externally as a lotion, cataplasm &c. to allay pain in scrofulous or cancerous ulcers, scirrhus, hemorrhoids &c. &c. Extractum Hyoiseyami. Pound the leaves fresh & bruise them in a stone mortar. sprinkle on them a little wat. express, boil, strain & evaporate to a proper consist. it retains its softness a long time. Dried after 3 or 4 years exhibit in being broken small crystals of nitrate of potassa & chloride of sodium. It is

prepared in England ppy for us. dark olive, nearly black, narcot. impleat. od. bitter. nauseous, saline taste. it is of very variable strength.
Extractum Hyoscyami Alech. Take of herbaceous leaves in coarse powder. ℥j. Dil. Alech. Oiv. moisten the leaves with Oss. Alech. & allow
to stand 24 hours. Transfer to a displac^g apparatus & grad^y add the remain^t. Alech. when the last part of this has penetrated the leaves pour
in enough wat from time to time to keep the powder cease to filter when the liquid begins to produce a precip^t. Distill of the ale
from the filt^r liquor & evaporate the residue to a pap^y consist^g. this prep^s is emul^g stronger & better than the inspissat^d juice. Structura
Hyoscyami. Herbaceous leaves ℥iv. Dilut. Alech. Oij. Macerate 14 days express, filter through paper. Dose ℥ij.

Humulus.

The root is perennial, send^g up numer^s annual angul^r rough, flexible stems, which have round neighbour^g objects insipid
from left to right. climb^g very high. leaves opposite on long foot stalks. they have 3 to 5 lobes, are deep green above & are very rough
with minute prickles. flowers numer^s & small, the males are yell^l white in panicles the female, grows on a separate plant is
pale green & dispos^d in solitary, pedunc^l aments, compos^d of membran^s scales each bear^g 2 near its base on its inner surf 2
flowers. the aments are convert^d into ovate membran^s cones or strobiles. each scale contain^d at its base 2 small seeds
surround^d by a yell^l grain^l resin^l powder. It is found wild in this country. When ripe they are pick^d. dried by artifice heat pack^d
in bales & sent to market. Prop^s They consist of numer^s thin transverse, vein^l leaflike scales of pale green^l yellow^l. contain^d at
their base 2 small round, black seeds. the most active part^l is a powder consist^g of small granules secret^d by the scales
& is officinal. Though brittle when dry they are difficult to pulverize. Od. strong, recent; & narcot. & frag^r. Taste bitter, aromatic^l.
slightly astring^l. They impart these prop^s to wat by decoct. long boil^d & keep the aroma. Alech extracts its virtue.

Sopulinea is obtain^d by rubbing & sifting the strobiles of which it forms 2 or 3 by weight. Thus procure it is a
yell^l powder mix^d with minute particles of scales has the pecul^r flavour of hops examined by the microscope it consists
of globules fill^d with a cell matt^r. moderately heat it becomes adhesive. it is inflamm^l & a volat^l oil. has narcot^l prop^s
is obtain^d by dist^l with wat. A bitter ppl. call^d Lupuline or lupulite is procure^d by treat^g the aqueous extract of
lupuline mix^d with a little lime, by alcohol, evaporate the thick. treat^g the result^g extract by wat. evaporate the sol^l & wash^l the
residue by ether. it is probably the tonic ppl. of hops. Med Prop^s Tonic moderately narcot. used in gen^l & local debility
associat^d with morbid irrit^l & nerv^s disorder. They may be used where opiates from their ten^l to constip^l are inadmiss^l.
They are most useful in dyspepsia nerv^s & moderation of drink. Dose of powder 3 to 20 gr. the powder is not much used
Dose of infus^l ℥ij. 2 or 3 times a day. in the prop^s of hops 3ss to Wat. boil^d 30j. A pillow of hops mix^d with some
spirit^l liquor to prevent rustling, allays restlessness. Some water cataplasms are also made. Lupuline is more certain in
its effects than the preced^l forms. The pill is made by simply rub^l in a warm mortar till it becomes a wet le & then
mould^d in pills. Dose grvi to grxii.

Camphora.

The camphor tree is an evergreen of consid^l size; resem^l the linden, with a trunk straight below
divid^d above into many branches. bark smooth & green^l. leaves smooth shin^l rib^l. bright yell^l green above
paler beneath. 2 or 3 inches long. flowers small white in clusters. fruit a red berry resem^l the cinnamon
berry. It is of Cam^l in Japan. The trunk but partic^l the roots & smaller branches are cut into chips, then

place with a little wax in large iron vessels, surmount^d with a cap of lead. The rice straw a move^{le} head is
applied to the camp^{volat} ^{by the steam is condensed} upon the straw. In China the common plant is 1st but until the camp^{adheres} to the
stick used in str^{ing} when the steam becomes so all over the camp^{which} concretes being alternate with layers
of earth is sublimed. The cheapest & most abundant from the island of Formosa is taken to Canton & thence export^d by
the name of Chinese camphor comes in chests of 1630 lined with lead is in grains or granular masses, colored white & is
mixed with impurities. A 2^d variety the Dutch, Japan or Tub camph. comes from Japan to Batavia & thence is export^d
these names are 1st from the people who introduce it into commerce. 2^d from its origin. 3^d from the recipient in which
it is often contained. It is also in granular masses but larger, pink & purer. To refine it mix crude camph^{with} quick lime
in the proportion of camph 50 parts to quick^{lime} 1 part & expose in a glass or on the earthen vessel ^{in a sand bath}
a good^{ly} increase^d heat, it is melted & comes into vap^{or} & condenses in a suitable recipient. Thus refine it in large cir-
cular cakes, 10 or 2 inches thick convex on one side & concave on the other & perforat^d in the center. Prop^{ty} White
spell^{ed} c^{on}junction to the touch, skin & fract^{ure} & crystal^{ine} texture. friable, yet tenacious enough to render it difficult to pull
^{a small portion of} unless gel^{atinous} or other volat^{ile} for which it has an affinity be added to overcome the cohesion of its particles. It peculiarly strong
penetrat^{es} & frag^{ile} taste bitter, pung^{ent} attend with a sense of coolness. Sp gr. 0.985 to 0.996. Very volat^{ile}. It is nat^{urally} on
exposed to the air at ord^{inary} temp^{erature} condense in bottles, the vap^{or} condenses on the inner side form^{ing} large & beautiful crystals if
all^{owed} to stand long enough. Melt^s at 288° F & boils at 400° F. Burns with a brilliant flame, emit^s much smoke &
leaves no residue. Soluble with wat^{er}, a small part is dissolved; accord^{ing} to Berzelius only 1000 parts by the intervention of sugar
or better of magnesia a much larger proportion is dissolved. Carb^{on} acid produces the same effect. Alcoh^{ol} dissolves 75% its
weight of camph^{or} which is precip^{itated} by add^{ing} wat^{er}. It is soft with change in ether, the volatile & fixed oils, strong acetic ac^{id}
& the dilute mineral ac^{ids}. Unit^{es} with resins or bitumens with the concrete oils it forms a soft tenacious mass in which
the oil of turpentine & is & requires hydrog^{en} 10 carb^{on} which with 10 of oxyg^{en} forms Camph^{or} kept in close bottles.

Med^{ical} Prop^{ty} Some think it sedative, others decidedly stimulant. Its operation is 1st & 2^d directed to the cerebral & nervous systems
the cerebral though not 1st affect^{ed} is probably involved through the medium of the brain it acts as a direct irritant to
the mucous memb^{ranes} with which it comes in contact & may thus secondarily excite the pulse. 4th moves & rises in a
state in viv^{id}. It produces mental exhilarat^{ion}, increases heat of skin & occasions a rapid res^{piration}. The pulse is
slight^{ly} increased in fullness, but not in force or frequency. has a tendency to the genital organs produce a burning
sensat^{ion} along the urethra & excite & volupt^{uous} dreams. Lilién denies the st^{imulant} way. Some think it always irritat^{es} of
the urin^{ary} & genit^{al} apparatus & has an aphrodisiac prop^{erty}. Its primary operat^{ion} allay^s new^{er} irritat^{ion} & render it
useful in disease attend^{ed} by new^{er} derangement. In larger doses it produces giddiness, mental confusion & a tendency to sleep
or morbid states of syst^{em}. Allay^s pain & spasmodic act^{ion} in priapism. Does it produce nausea, vomit^{ing}, anxiety, vertigo
delir^{ium} insensibility, com^{as}, convuls^{ions}, death? By its moderately stimulant powers, its influence as a diaph^{oretic} & calmer of nerv^{ous}
irritat^{ion} it is well adapt^{ed} to all typhoid diseases. Its anodyne & narcotic influence render it useful in inflammatory
disease as in drin^g with phlegmasia, rheumatism. In these it should only be used however after blood &

flammability—relations to water, alcohol, ether, volatile and fixed oils—reaction of water upon the tincture—effects of union with resins and fats—chemical nature—mode in which it is best kept.

Effects on the system—poisonous effects—therapeutical applications.

Medium dose, 5 to 10 grains—but the dose may vary from 1 to 20 grains. Given in the form of bolus or emulsion. Objection against the former. Modes of preparing the emulsion. Given also in solution. Camphor water (*Aqua Camphoræ*, U. S.) an official preparation. Mode of preparing it. Strength of the solution. Purposes for which it is used. Dose, $\text{f}\overline{\text{3}}\text{j}$. or $\text{f}\overline{\text{3}}\text{ij}$. or more. Camphor is used also in tincture. Strength of the tincture. Dose, 5 drops to $\text{f}\overline{\text{3}}\text{j}$.

External use of camphor. Applied in spirituous or oleaginous solution. Official preparations, 1. *Camphorated Tincture of Soap* (*Tinctura Saponis Camphorata*, U. S.) 2. *Camphorated Soap Liniment* (*Linimentum Saponis Camphoratum*, U. S.) commonly called *opodeldoc*; 3. *Camphor Liniment* (*Linimentum Camphoræ*, U. S.)

BELLADONNA. U. S.

Leaves of *Atropa Belladonna*—a perennial herb, indigenous in Europe. Whole plant narcotic. Commonly called *Deadly nightshade*.

Shape of the leaves—colour when dried—odour—taste—virtues said to reside in an alkaline principle called *atropia*.

Effects on the system. Poisonous action. Treatment of its poisonous effects. Therapeutical applications. Used in substance, infusion, or extract.

Dose of the powder, gr. j. night and morning—of the infusion, made with one scruple to ten fluidounces of water, $\text{f}\overline{\text{3}}\text{j}$. or $\text{f}\overline{\text{3}}\text{ij}$.—of the extract, or inspissated juice (*Extractum Belladonnæ*, U. S.), much more employed in the United States than any other preparation, one-fourth or one-half a grain twice a day. An alcoholic extract also directed by U. S. Pharmacopœia. Reasons for beginning with a small dose. The quantity to be gradually increased, if necessary, till some effects upon the system are produced. Evidences of these effects.

External use in the form of plaster (*Emplastrum Belladonnæ*, U. S.), and as an application to the eye and the os uteri.

STRAMONIUM LEAVES.—STRAMONII FOLIA. U. S.

STRAMONIUM ROOT.—STRAMONII RADIX. U. S.

STRAMONIUM SEED.—STRAMONII SEMEN. U. S.

Leaves, seeds, and root of *Datura Stramonium*—an annual plant, growing wild in all quarters of the world. Situations most favourable to its growth. Common names.

Leaves. Odour in the recent state—taste.

Seeds. Shape—colour—odour—taste—relative activity—relations to water and alcohol.

Virtues of Stramonium ascribed to an alkaline principle called *daturia*, the existence of which, however, is doubtful.

Effects on the system. Poisonous action. Evidences of this action and mode of treatment. Therapeutical applications. Dose of the seeds, one grain—of the extract of the seeds (*Extractum Stramonii Seminis*, U. S.), from one-fourth to half a grain—of the powdered leaves, 2 or 3 grains—of the official extract or inspissated juice of the leaves (*Extractum Stramonii Foliorum*, U. S.), one grain night and morning, gradually increased till the system is affected.

External use of stramonium. Employed in the form of an ointment (*Unguentum Stramonii*, U. S.)

BITTERSWEET.—DULCAMARA. U. S.

Stem and branches of *Solanum Dulcamara*, or *woody nightshade*. Character of the plant, and places of growth.

Shape and size of the twigs—structure—nature of the surface—colour—odour—taste—relations to water.

Virtues ascribed to a peculiar alkaline principle called *solanina*.

Effects on the system. Therapeutical applications. Usually given in decoction, which is official. Dose, $\text{f}\overline{\text{3}}\text{ij}$. four times a day. The extract (*Extractum Dulcamaræ*, U. S.) may be given in the dose of from 5 to 10 grains.

HEMLOCK LEAVES.—CONII FOLIA. U. S.

HEMLOCK SEED.—CONII SEMEN. U. S.

Leaves and seeds of *Conium maculatum*—a biennial, umbelliferous plant, indigenous in Europe, and naturalized in this country. Sometimes called *cicuta*, but improperly. The

whole plant narcotic. Most so in warm latitudes. Mode of collecting and preserving the leaves.

Properties of the leaves—colour—colour of the powder—odour—taste—relations to water, alcohol, and ether. Appearance of the seeds.

Active principle, probably a peculiar volatile alkali called *conia*.

Effects on the system. Poisonous properties. Therapeutical applications. Dose of the powdered leaves, 3 or 4 grains—of the extract or inspissated juice of the leaves (*Extractum Conii*, *U. S.*), 3 grains, repeated 2 or 3 times a day. The dose to be gradually increased till some effect on the system is produced. Evidences of such effect. Caution in relation to the use of different parcels of the medicine. An alcoholic extract also officinal.

Conii Folia et Conii Semen.

Root biennial, whit^e spindle shap^d, stem herbaceous, branch^s 3 to 6 ft high round, hollow, smooth, shin^y slightly striat^d, mark^d with purpl^{ish} spots, lower leaves bipinnate, over a ft long, shin^y the upper are small^{er} & bipinnate both have channeled foot stalks & incis^e leaflets which are deep green above pale beneath. flowers small, white, in corymbose terminal umbels. fruit size of a pea, round^{ish} ovate, composed of 2 planoconvex, easily separable parts hav^{ing} 5 crenat^e ribs on the outer surf. flowers in June & July. exhal^{ant} at this period, a fetid od. resembl^{ing} the od of onion or the urine of cats. Those plants are most active which grow in a sunny expos^{ure}. The leaves are gather^d when the plant is in flower. The leaflets are quickly dried in the hot sun, or on tin plates before a fire or by stove heat not exceed^{ing} 120°. Kept in boxes or tin cases, & excluded from direct light. the same is effect^{ed} by pulveriz^{ing} & put^{ting} in opaque airtight bottles. The foot stalk should be reject^{ed}. The dried leaves have a dark green col^{our}, the powder is also green, od strong, heavy & narcot^{ic}. Taste bitter & nauseous. Seeds yell^{ow} gray, feeble od. bitter. Wat. distill^d with fresh leaves has the od. & nauseous taste of Hemlock but is not narcot^{ic} the decoct^{ion} is nearly tasteless & the ext^{ra}ct result^{ing} from its evap. nearly inerts. Alcohol. & ether^{al} extract is not typ^{ical} of the same in action. In the saline state is more get^{ter} poison. 1 drop in the eye of a rabbit kill^{ed} it in 3 min^{utes}. 3 drops will^{ing} kill a cat in 12 min^{utes}. It seems to act upon the spinal marrow & so that the animal is unable to respire by lack of respiration the brain does not appear to be specially affected. If it be given as an irritant. Med. Prop^{erties}. Hemlock is narcot^{ic} with being & excited stimulant or sedative to the central. In the insens^{ible} it produces ± vertigo, dimness of vision, nausea, faintness, g^{eneral} muscular debility, & insens^{ibility} & as the pupils dilate, there is difficulty of speech, delir^{ium} or stupor, tremors, paralysis & convulsions & death. Its operat^{ion} begins ½ hour after administrat^{ion} & lasts 24 hours. A palliative in scirrhus & cancer & ulcers. Used to relieve or palliate the symptoms favourably to modify the act^{ion} of med^{ication} with which it is combin^{ed}. From a violent chronic enlargement of the abdominal viscera, painful scirrhus & ulcers, & disease of the skin & of the eyes &c. it is a great health depress^{or} in 2nd & 3rd syphilis, in excessive secretion of milk, asthma &c. & in nervous diseases. Extract^m Conii. Hemlock leaves to be bruise them in a stone mortar, sprinkle on them a little wat. express the juice, heat it to boil^{ing}, strain, evap^{orate} to a prop^{er} consistence. To maintain a given impression the dose is more rapidly increased than with narcot^{ic} g^{eneral}, the syst^{em} soon accustom^{ed} to self to its influence. It has been given in 2 ounces a day. This med. vary^{ed} much in its strength it is necessary to be cautious in using a new parcel, at 1st & diminish^{ing} the dose in order to prove its strength. Unpleasant effects have result^{ed} to patients under its use in large doses from this neglect. The fresh leaves are externally used as an anodyne & cathartic. In poison^{ous} doses evacuate the stomach. Extract^m Conii Alcohol^m. prepared in the same manner & act^{ion} as Hyos^m Alcohol^m. See Page 28.

CLASS VI.

ARTERIAL SEDATIVES.

General Observations.

Sedative medicines are those which, by their immediate influence, produce a reduction of the vital actions. Some of these are directed more especially to the circulatory system, reducing the action of the heart and arteries, without any immediate influence upon the nervous power. These are called *arterial sedatives*. Others reduce at the same time arterial and nervous power; and these, for the sake of convenience, we call *nervous sedatives*.

The arterial sedatives, though in their primary action confined to the circulatory system, undoubtedly affect the nervous system also; but only in a secondary manner. The two systems are so closely connected by sympathy, that any great disturbance of the one seldom exists without inducing disorder in the other.

Though sedative in their general influence, these medicines may be stimulant in relation to particular functions or organs, and in large quantities often act as local irritants.

An obvious indication for the use of the arterial sedatives is afforded by increased vascular action, resulting from an increased display of the vital energies. Hence their use in all inflammatory diseases attended with fever, and not complicated with typhous tendencies; and in all fevers in which the grade of action is above the healthy standard.

Refrigerant medicines belong to this class. They operate in general by reducing the excited action either of the heart or of the capillaries, from which the increased heat arises.

ANTIMONY.—ANTIMONIUM.

Even in quantities too small to produce obvious effects, the antimonials are not without influence on the system. They occasion some modification of the vital actions, which, though so slight as to escape notice in health, is yet important in some cases of disease. Medicines which act in this way are called *alteratives*.

In larger quantities, given so as to operate upon the system, without producing nausea, they depress the movement of the heart and other parts concerned in the circulation, as indicated by a slower and weaker pulse, and a less vigorous impulse of the heart when examined by a stethoscope. At the same time the surface becomes cooler and paler, and respiration less frequent. Sometimes, by proper management in the increase of the dose, and in the regulation of the diet, this depressing influence may be exhibited in a powerful degree without any especial action on the stomach.

Usually, from doses calculated to produce a decided sedative impression on the circulation, nausea or sickness of stomach also results, which, by its own depressing agency upon the circulatory function, very much increases the sedative influence of the antimonial. This combined action is sometimes desirable when great relaxation is to be produced; but the local impression on the stomach should be avoided in cases of inflammation or great irritation of that viscus.

In still larger doses, the antimonials usually vomit. Of this effect, more will be said under the head of emetics.

These preparations are apt also to irritate the bowels, and to occasion purging, especially if not thrown off from the stomach by vomiting. Very large doses sometimes occasion violent vomiting and purging, with great and dangerous prostration.

While operating as general sedatives to the circulatory forces, the antimonials appear to stimulate the secretory functions, being directed to one or another of these functions, according to the circumstances under which they are given, or the mode of administration.

The effects of antimonials upon the heart and arteries, and upon the secretions, probably depend upon their entrance into the blood-vessels by means of absorption. On the stomach they probably act by an immediate irritation, though they appear to have a peculiar tendency to this organ, as, even when introduced into the system by other routes, they are said to act as emetics.

Applied in large quantity to any part of the body, they produce local irritation or inflammation. Thus, tartar emetic, when applied to the skin, gives rise to a pustular eruption, and on a surface unprotected by the cuticle is capable of acting as a caustic.

Metallic antimony, administered in very fine powder, is capable of producing all the

general effects of its preparations; but its activity probably depends upon chemical changes which it undergoes in the stomach, and its operation is too uncertain to be depended on.

The preparations which have at different times been employed are very numerous. It is sufficient to notice three—viz. 1. *tartar emetic*, 2. the *precipitated sulphuret*, and 3. the *antimonial powder*.

TARTRATE OF ANTIMONY AND POTASSA.—ANTIMONII ET POTASSÆ TARTRAS. U.S.—*Tartar emetic. Tartarized antimony.* Chemical nature. Mode of preparation. Reason why it should always be crystallized.

Shape of the crystals—colour—effect of exposure—odour—taste—relations to water and alcohol—effects of time upon the aqueous solution—incompatibles.

The best of the antimonials. In small doses, used as an alterative in chronic cutaneous diseases, scrofulous affections, chronic pulmonary complaints, &c.; in somewhat larger doses, as a refrigerant or arterial sedative in febrile and inflammatory complaints, particularly bronchitis and pneumonia, and in hemorrhages. Employment of very large doses in pulmonary inflammations. Acts in this way doubly, 1. as a sedative, 2. by revulsion to the stomach and bowels. Dangers of this mode of using tartar emetic. Poisonous effects. Resemblance to malignant cholera. Treatment.

Dose of tartar emetic as an alterative, from one thirty-second to one-sixteenth of a grain, dissolved in a large proportion of water, and repeated so that from one-fourth to one-half a grain may be taken daily;—as a sedative, from one-twelfth to one-sixth of a grain or more.

Antimonial Wine.—*Vinum Antimonii, U.S.* Solution of tartar emetic in wine in the proportion of two grains to fʒj. Advantages of this preparation, and of wine as a solvent. Caution necessary in the choice of the wine. Disadvantages of the inferior varieties. This preparation should be used only in cases requiring small doses of the antimonial.

PRECIPITATED SULPHURET OF ANTIMONY.—ANTIMONII SULPHURETUM PRECIPITATUM. U.S. Mode of preparation. Mode of preparing *Kermes' mineral* and *golden sulphur of antimony*. Difference between these and the official precipitated sulphuret. Colour of the three. Relations to water and alcohol.

Operation upon the system. Therapeutical applications. Dose as an alterative, 1 or 2 grains—as an emeto-cathartic, 5 to 20 grains.

ANTIMONIAL POWDER.—PULVIS ANTIMONIALIS. An imitation of *James's powder*. Mode of preparation. Chemical nature. Colour—taste—smell—insolubility in water. Uncertainty of medicinal effect. Therapeutical applications. Dose, 3 to 8 grains.

SALINE SUBSTANCES.

Almost all the *neutral alkaline salts*, and those in which the acid predominates, are sedative in their influence on the circulation. Usually called refrigerants. They produce this effect independently of their purgative action or influence upon the secretions. But they are chiefly used in reference to these latter effects, and only incidentally as refrigerants or sedatives. Therefore more properly treated of under other heads. One of them only so prominently sedative as to require consideration here.

NITRATE OF POTASSA.—POTASSÆ NITRAS. U.S.—*Nitre. Saltpetre.* Whence imported. Mode in which prepared. Artificial nitre beds. State as imported. Mode of refining.

Shape of crystals—colour—odour—taste—solubility in water—insolubility in alcohol—absence of water of crystallization—water mechanically present—effects of heat.

In moderate doses repeated frequently, lessens the force and frequency of the pulse, and diminishes animal heat. Suggestion as to its *modus operandi*. Stimulates the secretory functions, particularly that of the kidneys—in some measure also that of the skin. Diminishes the energy of the stomach, and causes indigestion. In large doses, it often occasions purging. In very large quantities, poisonous. Effects as a poison. Treatment of its poisonous effects. Given in inflammatory diseases, in which the action is above the standard of health, and in which inflammation of the alimentary mucous membrane is absent. Particular applications. Dose, 5 to 10 grains every hour or two hours. Given in powder or solution.

Often combined with tartar emetic, in the proportion of 5 or 10 grains of nitre to one-twelfth or one-sixth of a grain of the antimonial, in solution. Often also with calomel in addition. Composition of the *nitrous powders*.

VEGETABLE ACIDS.

Most of these are refrigerant or sedative to the circulation. Useful when properly diluted, as drinks in febrile complaints. Too largely given, diminish the vital forces, occasion indigestion, and cause emaciation. Those chiefly used are the citric and acetic acids, in the form of lemonjuice or vinegar. Former usually preferred.

Antimonii & Potassae Tartar.

Composition. Tartar emetic consist of 2℞. in tartaric acid, 1℔ of potassa, 1 sesquioxide of a.imony, 3 wat. Contain^g tartaric acid & potassa in the precise proport. to form tartarate of potassa or tartaric acid, it may be viewed as a comp^d of 1 sesquioxide of a.imony & 1 of antimonial sesquioxide. The excess of ac. in the bitart^{re} would as usual with the sesquiox. in which it is a double salt, compos^d of tartarate of potassa & tartarate of the sesquiox. of a.imony. Prep. Take Sulphur et of Antimony, in fine powder 3iv. Muriat. ac. 3xxv. Nitric Acid 3ij. Wat. Congj. Mix the acids together in a glass vessel, & by degrees the Sulph^r of Ant^y digest with a gradual increas^d heat till off sc^{ee}ces, then boil them. filter when cold & pour it into the Wat. as the precip^d powd. with wat. till freed from ac. dry it. Take of this pow^r 3ij. Bitart^{re} of pot^a in very fine pow^r 3ijss. Dist^d wat. 3xviiij. Boil the w^{at} in a glass vessel, then add the pow^r previously mix^d together, & boil 1 hour till while hot, set by to cryst^l. by further evapⁿ the liq^r yields a 2^d crop of cryst^l which should be purified by a 2^d crop, & kept in crystals. Tart. em^{et} is pure or nearly so & is entirely free from arsenic. It should never be pure here in bond in consequence of impurities either accident^l or fraud. It consist^g ppt^d of monoclinic crystals of tartaric acid & liq^r iron, sulph^r & chlor^{de} & arsenic which last is derived from the native sesquioxide of antimony. Prop^s Transpar^t colorless cryst^l g^l in rhombic octohedrons with striat^d lateral planes also in tetrahedrons of which numerous diam^{ter} on exposure to air they effloresce slightly become white & opaque. Taste, nauseous metallic & styptic, insol^{ble} in alcohol sol^{ble} in proof spirit or wine, sol^{ble} in 15 parts wat. at 60° & in 2 or 3 parts boil^d wat. It is aqueous solutⁿ is decompos^d by kept. It is imm^{un} part. with acids, alkalis & their carb^{ates} some of the earths & metallic chloride of calcium, act^s & sub^{jects} of lead, also with astring^{ent} veget^{al} infus^{es} & decoct^{ions}. as rhubarb, cinchona, catechu, galls &c. these latter except perhaps gall less^{en} its activity with tender^d wine. Med^{ical} Prop^s Tart. em^{et} is the most import^{ant} of the antimonial used in small doses alone or conjoin^d with calomel as an alterative, it is used also in febrile complaints to produce perspiration it acts very well in this character if nausea is produce^d & for this purpose is mostly combin^d with saline remedies as nitre, or sulph^r of magnesia & assist^{ed} by copious drink. If the surf^{ce} is exposed to cool air the pores are constrict^d it acts as a diuretic. Conjoin^d with urinae, squill & similar remedies it acts as an expector^{ant}. In full doses it is a certain, strong & permanent emetic, & a more powerful influence on the stomach g^l than ipecac. the nausea & prostrat^d attend^{ant} on the action of ipecac^{is} is mitigat^d as a rule where the object is to compress^{stagnate} the liver & other abdominal viscera as well as to wac^{te} the stom^{ach}. By the salutar^y effect it acts on the duodenum it causes copious discharges of bile & hence is a remedy in accumulation of that secret^{ion}. It is also emetic in the commencement of intermittent & bilious fevers, also in jaundice, hoop^{ing} cough, cramps in nerv^{ous} diseases as mania. Ric^{ket} & diarrhoea, in mania, in red^{ness} of the face. Advantage is taken of its relax^{ing} power over the muscles when act^{ed} as a nous cant. it produces purg^{ation} & it is an incident^{al} effect of its diaphoret^{ic} & such operation consequently is often ad^{vised} to purg^e in order to promote the perspiration. It is contraindicat^d in great debility in advanced fevers & fevers with extremely irritable stom^{ach}. It has been used also as a sedative or a stern^e cathartic, particularly in peripneumonia & with less effect in pleurisy & bronchitis also in acute rheumat^{ism} of the joints, articular dropsies, cerea, hydrocephalus & sup^{pur}ation with a view to this effect the dose is from 1 to 2 grs or more every 2 hours &c. &c. in a little with restrict^d the patient in the use of drinks while morbid crudit^y

Thus used in diseases of high act it seldom produces vomit, which effect the authors of this practice wish to avoid. This power of the syst. to bear such doses is depend^t on exist^t high morbid action & is termed tolerance. Its use should not however supersede bloodlet^t in the foregoing diseases, never for much reliance. If however local & g^d bleed^t have been cut as for a circumstance per^mit, tart emetic in the cont^{ra}st^{us} mult^a plan may prove useful. If the tolerance can't be otherwise established, conjoin tart emetic to the antimony. In particular dropsy this mode of large doses has proved very successful. The dose fr^o an increas^e from 4 gr. to 16 or 20 daily. Tolerance being establish^d the first day. 4 gr. per se^s doses, it produces an acute metallic taste, nausea, copious vomit^t, hiccup, burning pain in st^om, colic, frequent stools & mucus, faint, small contract^d, & accelerated pulse, cold skin, some^t int^{er}ne heat, difficult respiratⁿ, loss of sense, convulsive movem^{ts}, painful cramps in the legs, prostratⁿ. Neither to these is add^d some^t difficulty of deglutitⁿ. Vomit^t & purg^e in a few instances are observ^d, the violence of the other sympt^s being much increas^d. Doses which in health prove fatal are some^t borne with^out danger in morbid states attend^d with int^{er}ne action. Treat^{mt}. Vomit the patient by tick^l the throat by a feather & the abund^{ant} use of warm wat^r. usually the vomit^t is excessive & distress^{ing}; hence the use of s^{ol}utⁿ which decompose the poison as astring^{ent} decoctⁿ of infusⁿ of bark, camom^{il} tea & better decoctⁿ of galls & still better galls in substance. Stop the vomit^t by tart emetic given by mouth or rectum & combat consequent inflammation local & g^d bleed^t & other antiphlogistic measures are resor^t to. Used external^{ly} as a counter irrit^{ant}, mix^d with laud^o or serate or spirit^u in very fine powder on adhesive plaster, care must be taken not to let it act too far as it may produce deep & painful ulceratⁿ difficult to heal. Dose as a diaphoret^{ic} or expector^{ant} $\frac{1}{2}$ to $\frac{1}{2}$ gr. as a nauseat^{ant} sudorific $\frac{1}{2}$ to $\frac{1}{2}$ gr. as purg^{ant}. Dissolve 1 gr. in wat^r 3j. with Epsom salts 3j. Dose 2 table spoonfuls every 2 or 3 hr. As emetic 2 to 3 gr. in divid^d portⁿ of 1 gr. in a tablesp^{oon} every 10 or 15 min^{utes} and its operatⁿ by warm wat^r or warm chamomile tea it is conjoin^d also in the follow^{ing} prepatⁿ with the p^{er}ceac^a. 1 or 2 gr. Tart. emet^{ic} to 20 gr. p^{er}ceac^a.

Vinum Antimonii. Tart^r of Antim^{ony} & Potassa 3j. Sherry wine 13x. Dissolve the tart^r in the wine. This prepatⁿ affords the means of adminis^{tr} minute doses of tart^r emet^{ic}. it is more permanent than in aqueous solutⁿ which is liable to spontaneous decomp^{osit}. Perfectly pure crystal^l tart^r emet^{ic} & sound sherry or t^{em}perance wine should be used as mak^{ing} a permanent solutⁿ, inferior wines or impure tart^r emet^{ic} frequently produc^e precip^{itates} of insol^{uble} comp^{ounds} after a solutⁿ is affect^{ed} for chills. Doses expectorant or diaphoret^{ic} 4 gr. to 4xxx. or as emetic^{ic} for chills 4 gr. to 43j. every 15 min^{utes} till it operates.

Antimonii Sulphuretum Precipitatum. Sulphur of Antim^{ony} in fine powd 3vj. Sol^{ut} of Potassa Div. Dist^{ill} wat^r. Sulph^{ur} ac. aa. Q.S. Mix the Sulphur with the Sol^{ut} of Pot^{ash} & Dist^{ill} wat^r. Oij. boil gently 3 hours, constantly stir^{ring} & occas^{ionally} add^d Dist^{ill} wat^r to preserve the measure, strain through a double linen cloth, add while hot Dist^{ill}ed sulph^{ur} ac. so long as it produces a precip^{itate}, wash away the sulph^{ur} of potassa with hot wat^r. Dry the precip^{itate} & rub it to a fine pow^{der}. Vermes mineral^{es}. ^{from heavy sulphuric acid of 1.13} prep^{are} in 3 ways. 1st with a boil^{ed} solutⁿ of the carbon^{ic} alkalis - 2^o with a boil^{ed} solutⁿ of the caustic alkalis. 3^o with the carbon^{ic} alkalis at red heat. Mode. Boil $\frac{1}{2}$ hour 1 part pulv^{er} sequisul^{phur} of Ant^{imony} with 22 or 23 parts of cryst^{all} carb^{on} of Soda in 50 parts wat^r. filter & receive it in warm earthen vases, cover them & allow to cool in 24 hours the Vermes is de posit^{ed}. collect it on a filter, wash it with boiled wat^r & cool with contact of air: dry it at 77^o & keep it in well stopp^{ed} bottles.



Rationale. A part of carb^d of soda is chang^d by a transfer of carb^d ac. into caustic soda & sesquicarb^d. By a double decomp^{nt} between a part of the sesquisulph^t of ant³ & the caustic soda, sesquiox^d of ant³ & sulph^t of sod^m are form^d. The sesquiox^d then dissolves in the solⁿ of the remain^g carb^d of soda & the undecompos^d part of sesquisulph^t in that of the sulph^t of sodium. The sesquiox^d & sesquisulph^t being both more sol^l in these menstrua hot than cold, precip^{ts} as the liquid cools form^d. This variety of Hermes. 2^d mode boil 4 hour 2 parts sesquisulph^t of ant³ with 1 caustic potassa dissolv^d in 2 5/30 parts wat. filter, allow to cool. the hermes precipitates. Rationale. one part of sesquisulph^t with a part of potassa forms sesquiox^d of ant³ & sulph^t of pot^m. A 2^d part dissolves in the solⁿ of sulph^t of pot^m form^d, a 3^d form^d an insol^l compnd with a part of the sesquiox^d. The remain^g sesquiox^d unites with the potassa form^d a partially sol^l compnd. The hot filt^d liq. contain^g this compnd dissolv^d in wat. & sesquisulph^t of ant³ dissolv^d in the solⁿ of sulph^t of pot^m by refrigeratⁿ the sesquisulph^t in a hydrat^d state falls run free or nearly so from sesquiox^d this latter being held by the caustic alk. 3^d mode rub together 2 parts sesquisulph^t of ant³ & 1 part potash of commerce. fuse in a crucible at red heat reduce it to powder & boil it with wat. the liq. were to deposit. Hermes. The rationale is nearly the same as in the 2^d mode. GOLDEN

Sulphur is form^d by add^g an acid to the liq. remain^g after the precipitatⁿ of hermes. The liq. when caustic pot^l has been neutraliz^d at lest of sesquisulph^t of ant³ dissolv^d in solⁿ of sulph^t of pot^m & of sesquiox^d dissolv^d in solⁿ of pot^m by the actⁿ of the air the sulph^t of pot^m becomes more sulphuric & convey^{rs} add^g the ac. while sesquisulph^t & sesquiox^d are precip^{ts} with disengagem^{nt} of sulph^r. 1st mode the excess sulphur is also precip^{ts} in the sulphuret of potash. Golden sulph. is accord^g a minute sesquisulph^t & sesquiox^d of antimony contain^g ± sulphur. From the foregoing it is seen that the methode of obtain^g the precip^{ts} sulph^t of ant³ combin^g the processes of form^d hermes by a caustic alk^l & that for obtain^g gold & ant³. The refrigeratⁿ of the solⁿ gives hermes; the add^g of sulph^r ac. giving golden sulph. with ± free sulph^r accord^g to its exposure to the air. Hermes is of diff^l shades of brown, becom^g lighter col^l by expos^{re} to air & light till it is wh^{te}. Golden sulph. is of a golden yell. col^l. The precip^{ts} sulph^t of ant³ is bright orange col^l insol^l. When pure they are all tasteless. Med. Prop^s Precip^{ts} sulph^t is alterative, diaphoretic & emetic it is however ± uncertain med^l given combnd with calomel & ipecac^u in 2^d syphilis & cutan^l eruptions or combin^g with henbane or henbane in chronic rheumat^l. during its use the patient shoud use no acridulous drinks. The hermes obtain^g by the 1st mode is the best, the most active & shoud be used in smaller doses than the precip^{ts} sulph^t as it contain^g is also 1/2 or 3 times as much sesquiox^d. it is someti^m used in large doses as an antip^l & isie in peripneumony & other inflammations of the Chest.

Pulvis. Antimonialis. Edin^gburgh. sulph^t of ant³ in coarse pow^r. Hartshorn shavings, equal weight mix the, put them in a cal^d of iron pot^l till they become ash gray col^l & vapors cease to rise. pulverize, put in a crucible with the pot^l cover, expose to equal^l in near heat till white heat which is maintain^g 2 hours. reduce the product to a fine pow^r. It contains ppl^l of bone phosph^r of lime or bone earth, mix^d with antimony ac. When pretty dull white pow^r. tasteless & insol^l in wat. its compnd varies so much as to make it object ionable as a med^l. Med. Prop^s alterative, diaphoret^l, purg^l & is well accord^g to the dose given combin^g with camphor, opium & calomel. It is useful in acute rheumatism & produces no mercur^l effects which may not be better obtain^g from Det^l mercur^l.

Potassae Nitras. A natural & artificial product. It is found in Europe, Egypt, Peru the U.S. but most abundantly in India from whence commerce is supplied. In the U.S. it is found in caves found in limestone. It exists in the vegetable kingdom as in burage, tobacco, hollyhock, parietaria, hemlock & the Sunflower. Prop. from Nat^l Source: In India the saline earth contain^g 7 parts nitre in 1000. is placed in large mud filters lined with stiff clay on which wood ashes have been previously laid. Add wat. the solⁿ filters through the ashes, the nitrate of lime proceeds & amount^g 1% being converted to nitrate of potassa. The solⁿ obtained is evaporated in earthen pots, filtered & crystallized. contain^g 45 to 75% pure salt. The native much crystallized is sold under the name of crude saltpetre. Artificial Prep. and Nitre bed^g ^{in Germany} of animal & veget. remains with ashes & calcareous earth mixed with a part of loose soil, & placed under sheds to keep off rain. the sides being open to allow free ventilation. the matter is placed in little ranges or heaps, & frequently turned over with a spade & sprinkled with urine, for the nitrogen contained in it. After 2 or 3 yrs the nitrog. becomes nitric ac. & this mixed with the potassa of the veget. remains forms nitre. When the contents of the shed contain 45 of the salt per cubic foot, they are fit for lixiviation. Lixiviation is performed by repeatedly turning the soil upon fresh part of the mass till the soil is sufficiently strong being of a brown col. contain^g 1 part nitrate of potassa but also 1/2 nitrate of lime & magnesia & common salt. the earthy nitrate are decomposed by a solution of wood ashes which furnish^g potassa, turn them to nitric acid & pot the earthy nitrate is further decomposed as above & is removed the soil is covered with the nitric crystals in dirty white crystals. Crude nitre. In France it is obtained by reducing old plaster rub^g to powder mixed with the soil. now contain^g nitrate of lime & potassa & common salt. lixiviated by wood ashes, the nitrate of lime becomes nit of potassa, the earth being precipitated. The liq. is separated from the precipitate & concentrated by heat. the common salt rises as a scum & is removed. When the solution is 45 Brumés areometer, it is cooled & crystallized. this mode gives 85 to 88% pure nitre. the remainder being composed of sodium & earthy deliquescent salts. Nitre comes from Calcutta supplied to Boston in grass cloth bags of 150 to 175 lbs. There are 2 varieties the dirty yell. crystal or crude saltpetre & a better in small, more clear & nearly white crystals called cast p. dia. fine. Purification. 30 parts saltpetre are boiled with 6 parts wat. the part remain^g undissolved is common salt & is removed as a ballik proceeds. water is added to hold the nitre in solution. when common salt ceases to be separated, the solⁿ is chiselled with glue & wat. is added at intervals till the whole amount, included that previously added to 10 parts the clear solⁿ is strained to shallow copper coolers, agitated with wood instruments to hasten cooling & because of potassic salts well crystals. the purification is completed by wash^g the salt with wat. or a saturated solⁿ of nitre in a wooden hopper for several hours. it is then drained off & the salt is dried. The whole process is founded upon the fact that nitre is more soluble than common salt in hot wat. Prop. Nitre is in long, straight, semi-transparent, six-sided prisms with dihedral summits. white, odorless, taste sharp, cool & slightly bitter. solⁿ in 5 times its weight cold & 2 1/2 its weight boil^g wat. slightly sol. in rectified spirit but insol. in absolute alcohol. it has no wat. of crystallization, but is apt especially in the large crystals to hold mechanically wat. within its substance & is a source of impurity. It fuses at 662. increase the heat & it is decomposed. evolves pure O₂. it becomes hyponitric which evolves to produce nitrous oxide fumes of nitrous ac. & nitrous oxide in the absence of self ac. When thrown on burnt coals it deflagrates with bright scintillations. 4K in comp^o of 19 is nitric ac. & 1 of potassa.

Med Prop. refriger^t; diure^t; & diaphoret^t; powerful antiseptic. has a tendency to keep the bowels in a soft
and it given in active hemorrh²⁴ partic¹ haemoptysis. a gargle in sore throat. in form of sal. prunella it is
a good lip salve. In an over dose of ʒss to ʒj or more it is a poison produce^t heat & pain in stom. vomit^g purg^g of
blood, great prostrat^o. convulsions, death. empty the stom & then administer mucilag^s & emulsi^o drinks, brandy
to allay pain & cordials to sustain the sink^g powers of the syst^m. Antidote is known. Nitrous Powder are
composed of Potassae Nitrat^{is} ʒj.

Antimonii et Potassae Tarkat^{is} gr. j.

Hydrag. Chlorid Mitis. gr. vj.

} Fiat pulvis, in chartulas sex dividendus.

} One to be taken every 2 hours in syrup or molasses.

} Prop^s: refriger^t; diaphoret^t; & alterative. used in bilious fevers.

Lemon juice cannot be ad. to retain for a length of time its original flavor & in a few
one of the best modes of preserving it is to allow it to stand after expression till a coagulable matter
separates, then filter it & reduce it into bottles with a stratum of almond or sweet oil upon its surf.
It is preserved also by concentrat^g it by a gentle heat or by expos^g it to a free^g temp. & congel^g the watery part when
want^d for use it should be dilut^d to its former strength, but though the ac. prop^s remain the flavor of
the juice is determin^d. The best & best taste for lemon juice is a solⁿ of citric ac. in wat. in the proport. of
3j to Oj. with the addⁿ of a little oil of lemons.

Acidum Citricum Prep. Saturate the juice with carbon^d of lime (chalk or whiting in fine powder
of lime is form^d & allow^d to subside, this is wash^d repeatedly with wat. & decompos^d by dilut^d sulph^{ic} ac.
an insol. sulph^{ate} is immediately form^d & free citric ac. remains in the supernat^l liquor. this is concentrat^d in
leaden boilers till a pellicle begins to form, when it is transfer^d to other vessels to cool & crystallize. The 1st
crystals are yel^l brown & must be redissolv^d & recrystall^{iz} several times in order to have them pure & white.
Citric ac. is white crystals in the form of rhomboidal prisms with dihedrals^l & triads, permanent in dry
air, but efflorescent in damp air. heat^d it dissolves in its wat. of crystal^l solⁿ in $\frac{3}{4}$ its weight cold & $\frac{1}{2}$
its weight boil^d wat. sol. in alcohol. It is incompat. with alkalis, solut^s with earthy & metallic carb^{onates}
most acetates, alkali^{ne} sulphurets & soaps. to detect the presence of tartaric ac. in crystals
which are fraudulently mix^d some^{times} add carb^d of potassa which forms with the tartaric
ac. a crystalline precip^{itate} of bitartrate of potassa (cream of tartar) in the proport. of 3ixss
to dist^d wat Oj. If formula solutⁿ of the strength of lime juice.

Citric acid is contained also in limes, sour oranges, and tamarinds, which are therefore equivalent in effect to lemonjuice.

Modes of preserving lemonjuice. Citric acid in solution may be advantageously substituted.

Citric Acid.—*Acidum Citricum, U.S.* Mode of preparation. Form of crystals. A solution made with ℥j. to Oj. of water, may be used for lemonjuice. Oil of lemons is a good addition, in the proportion of four drops to the pint. Mode of mixing. For lemonade, ℥j. of acid may be dissolved in Oj. of water.

Citric acid is best purchased in crystals. Adulterated with tartaric acid. Mode of detecting the latter.

Used as a refrigerant, also as a preventive and cure of scurvy.

CLASS VII.

NERVOUS SEDATIVES.

General Observations.

Medicines which, in their primary operation, reduce at the same time the nervous power, and the force of the circulation. All of them obviously affect the functions which belong especially to the brain, and rank with those medicines usually called narcotic. It is doubtful whether their influence on the heart is exerted immediately, or through the intervention of the nerves. They are applicable therapeutically to complaints attended with nervous disorder and unhealthy excitement of the heart and arteries.

FOXGLOVE.—DIGITALIS. *U. S.*

Leaves of *Digitalis purpurea*—a biennial herbaceous plant, indigenous in Europe, and cultivated in this country. Said to be strongest when it grows in sunny exposures.

Shape of the leaves—size—character of the surface—colour—separation of the footstalks—mode of drying—appearance as prepared by the Shakers—means of judging of the quality—odour in the recent and dried state—taste—colour of the powder—relations to water and alcohol.

Effects upon the system. Influence on the pulse. Direction to the kidneys. Symptoms produced by an overdose. Treatment of its poisonous effects. Permanence of its influence. Disposition to act with accumulated force. Practical inferences. Not to be relied on as a substitute for the lancet. Reason of this. Useful as an adjuvant. Particular therapeutical applications.

Given in substance, infusion, or tincture—most certain in substance. Dose of the powder in chronic cases, 1 grain night and morning—in acute cases, one-half or one-fourth of a grain every 3 or 4 hours. Administered in pill. The *infusion* official. Made in the proportion of ℥j. to Oss. of boiling water, with f℥j. of the tincture of cinnamon. Dose, f℥ss. Dose of the tincture, 10 drops, about equivalent to a grain of the leaves. Cautions in relation to the increase of the dose, and perseverance with the medicine.

TOBACCO.—TABACUM. *U. S.*

Leaves of *Nicotiana Tabacum*—an annual plant—probably a native of tropical America—cultivated in all quarters of the world.

Sensible properties—relations to water and alcohol—effects of long boiling.

Activity thought to reside chiefly in a volatile alkaline principle called *nicotia*. Form, colour, odour, and taste of this principle, and effects upon the system. Another odorous principle. *Empyreumatic oil*, resulting from the destructive distillation of tobacco. Form, colour, taste, and odour of this oil, and its effects on the system.

General effects of tobacco as a nervous sedative. Poisonous action. More dangerous when given by the rectum than when swallowed. Reason of this. Treatment of its poisonous effects. Diuretic, nauseating, and emetic properties.

Seldom given by the stomach. Cases in which it is used as an enema. Given in this way in the form of infusion made with ℥j. to Oj. of water, of which one half is to be given at once, and the other half in half an hour if necessary. Cases in which tobacco may be used by smoking it. External application in the form of cataplasm, or of cerate made with snuff. Use of tobacco ointment.

HYDROCYANIC ACID.—ACIDUM HYDROCYANICUM. *U. S.*

Also called *cyanohydric acid* and *prussic acid*. Plants in which it exists. State in which it is obtained from them, and mode of obtaining it. *Cherry laurel water*. Uncertain, and little used here. *Oil of bitter almonds* may be substituted for the diluted hydrocyanic acid. Advantages of the oil.

The concentrated acid is too powerful for use. Also very susceptible of decomposition. The official acid is prepared in a diluted state. Mode of preparing it.

Form of the official hydrocyanic acid—colour—taste—odour—effects of exposure—mode in which it may be best kept.

Effects on the system. Poisonous effects. Remedial measures. Therapeutical appli.

Digitalis.

A biennial or perennial fibrous root, send^g up the 1st year large trifoliate leaves & the 2^d summer a single, erect, leafy stem 2 to 5 ft. high, ending in a long spike of purple flowers. the lower leaves are, ovate, point 6 inches long & 3 broad stand on short, winged foot stalks. the upper are sparsely, alternate & lanceolate, both have serrated edges & wrinkled velvety s^f. the upper being deeper green, the lower paler & more downy. the full grown leaves & fresh ones of the 2^d year old plant should be chosen, the foot stalks & midrib are nearly inert & should be rejected. they should be dried by sunshine or gentle heat before a fire keep^g them separate while drying another & perhaps better plan is to dry them in a basket in a dry & store, in a dark place. That prep^d by the shake is considered the most of their virtues in oblong & small masses. the leaves has^t probably been ^{perfectly} dried before some of them being muddy in the water w^{ch} this is not a good mode of dry^g them these packages being of very unequal strength. the leaves should be kept in well closed tin canisters sealed^d with wax & moist^{ure} or in paper preserved in opaque, well stopp'd phials. It should be renewed every year, its quality is judged by the green in which it pres^{es} the character prop^{er}, small & especially taste. In the recent state it is somewhat sweet, dried it has a faint narcotic or taste bitter & nauseous. colour pale dull green, modified by the whit^{ish} down on the under surf^{ce} of point fine deep green. yields its virtues to wat^r & to alcohol. Med. Prop^s narcotic, diuretic & sedative. When the syst^m is under its influence, tightness or ^{weight with} dull pain in the head, vertigo, dimness or disordered vision & confusion of mental operations are experienced, by irritat^g the pharynx & oesophagus larynx & trachea it produces hoarseness, spasm has resulted from its use. It somewhat disturbs the bowels produce^s nausea & vomit. It weakens the act^g of the heart the pulse sink^s to 50, 40 & even 30 strokes a minute. this is caused by a directly debilitating power. In overdose it produces nausea, vomit^g, stupor or delir^{ium}, cold sweats, great prostration, hiccup^g, convuls^{ions}, syncope. These are counteracted by stimuli as brandy, op^{ium} & volatile alkali. The stim^{ulus} being raised by the use of warm drinks. Its operation is very permanent. like that of most other phar^m once commenced it is maintained for a considerable time with^{out} any fresh accession of the med^{icine}. after having been given for several days in moderate dose, if some^t acts suddenly with accelerated influences, & endangers even the life of the patient. therefore caution should be observed not to increase or exert too vigorously when its influence has once begun to be felt, its use should be suspended for a time, or greatly reduced. Experience has proved it to be an inadequate remedy in which the sympt^{oms} of inflammation are such as to call for the use of the lancet. * though as an adjunct to the lancet it has proved very useful. It is a palliative in pt this is by reducing the excit^{ed} act^g of the heart also in aneurism, hypertrophy & dilatation of the heart, palpitat^{ion}, from hemorrh^{age} & gouty irritat^{ion}. in hemorrh^{age} after sufficient reduction by the lancet, in aneurism, pericarditis, ext^{ernal} & internal in dropsy.

* Because the lancet alters the quality of the blood while Dig only diminishes its circulation.

Tabacum.

The Tobacco of commerce is yell^h brown, od. strongly narcot^h & penetrat^h which are less obvious in the fresh leaves, taste little, nauseous & acrid. Wat^r & alcoh. extract these prop^s by long boil^g these prop^s are destroy^d the actual being feeble criment. Nicotia, a colourless liquid heavier than wat^r, liquid at 22° F. little smell when cold, exceed^{ly} acrid but taste even largely dilut^d. volatily^g, the vap^r irritat^h the nostrils & recall^d the od. of tobacco, inflammable, sol^l in wat^r & alcoh. ether & oil of turp^h. forms cryst^l salts with the acids, it is one of the most violent poisons known. 1 drop of the concentrat^d solutⁿ kill^s a dog & small bird perish at the approach of the tube contain^g it. Tannin is a counterpoison. Tobacco still at a temp^r above that of boili^g wat^r yield^s an empyrenat^h oil of dark brown col. acid taste & a smell resembl^g that of tobacco pipe after long use. There is another ppl^l call^d Nicotianin which is the odorous ppl^l of tobacco it is a fatty subst. insol^l in wat^r sol^l in alcoh. & ether. The empyrenat^h oil is a violent poison 1 drop inject^d in the rect^m of a cat caused death in 5 minutes. & 2 drs ps. similarly given to a dog produce the same result. Med Prop^s Tobacco is a sedat^h, narcot^h, an emet^h & diuret^h. & p^r duces ± these effects to whatever surf^{ce} it is appl^d. snuff^g upth nostrils it excites sneez^g & copious sec^{re}. Emmenagogue it irritates the mucous men^{br}. but the more it increas^{es} the flow of saliva inject^d in the rectum it acts as a cathartic. Moderately taken it quiets the nervous system in quietude produces languor & is much lik^l by those accustomed to its uses. In larger doses it causes confus^o in the head, vertigo, stupor, faintness, nausea, vomit^g & gen^l debility of nerv^s & circulatory funct^{ns} & in poison^g dose the sympt^{ms} are severe retch^g, distress^g & continu^g nausea, feeble pulse, cold skin, faint convuls^{ns} & death. It operates directly on the nerv^s syst^m & enters the circulatⁿ. Owing to the absorption of tobacco into the system its administratⁿ per rectum is very dangerous, more so than a proportion^{al} quantity taken into the stom^{ach} the stom^{ach} rejects it while it remains in the rectum. In poison^g doses evac^uate the poison, support the syst^m by external & internal stimul^{ts}, allay the irritatⁿ of the stom^{ach} by the moderate use of opiates. Bonie thinks that the funct^{ns} of the heart are affect^d through the medium of the nerves he & experiment on a decapitat^d & a health animal in the former the heart contin^u to act sometime while instant death was the result in the latter case from an equal dose. The remedial use of tobacco is less frequent than it would be supposed from its properties. Its nauseat^h prop^s which are very distress^g in fever. Its administratⁿ by stom^{ach}. As a narcotic to produce relaxatⁿ in spasmodic affect^s it is given per rectum in inf^s. smoke of tobacco or as suppository in stranguaria, hemorrhoids, constipation, spasm of bowels, retention of urine from spasmic contractⁿ of urethra. Snuff mix^d with cerate rub on the throat & breast in croup, a cigar smoked in croup are excell^{nt}. In a violent spasm of the crura glottidis reser^g deplet has yielded to a tobacco cataplasm on the throat, relax^g the crura. In these cases tobacco is an eff^{ct} happily resolute to some extent. Antispasmodic in spasmodic affections, used in cataplasm in articular & neuralgic is an excellent remedy, relieves toothache, finer capitis

Acidum Hydrocyanicum.

Exists in peach kernels, bitter almonds, the leaves of the cherry laurel & some other plants. & is obtained from them by distillation with new dist. water. Aqua Lauro-Cerasi. Dublin. Fresh leaves of cherry laurel 1 lbj. Water distilled a pint. add of comp. spirit of lavender ʒij. Rose Mxx to ʒij. The comp. sp. of lavender is here a substitute for a lemon in order to impart to the oil which may make it distinguishable from water. it is a very powerful sp. it is a sedative narcotic. The use of oil of bitter almonds per se in the spirit. similar to hydrocyanic acid. 40 drops kill a middle sized dog. The acid contained in the oil is much less liable to decomposition. Hydroc. ac. remains good several years if put in well stopp'd bottle. It is about 4 times as strong & as efficacious. Dose ʒij to ʒss & ʒss very cautiously increased till some effect is observed. Administer in emulsion with gum Arabic, loaf sugar & water. Dissolve it first in spirit to facilitate its solution in water. Pure hydroc. ac. is colourless transparent liquid, inflammable, very volatile but at 80° congeals at 5°. Taste at 1st cool then burnt. Leaves an after taste in the throat like bitter almonds. its od. is so strong as to produce immediate headache & giddiness, the greatest caution is necessary both in taste & smell. Its extreme activity prov^d highly dangerous. It is more apt to undergo decomposition than the dilute ac. Prep. of the Official ac. Ferrocyanuret of Potash ʒij. Sulphuric acid ʒjss. Dist. water ʒss. Mix the ac. with ʒss of dist. water when cool pour the mixture in a glass retort. Add the ʒij of Potash previously dissolved in ʒss of dist. water. Pour ʒviij of dist. water into a receiver, attach this to the retort. Dist. by means of a sand bath ʒvi. add to the product ʒv of dist. water or as much as is sufficient to render the Hydroc. ac. of such strength that 12½ grains nitrate of silver dissolved in dist. water may be accurately saturated by 100 grains of the acid. When wanted for immediate use it is prep^d as follows. Cyanuret of silver gr Lss. Muriatic ac. gr XL. Dist. water ʒij. Mix the muriatic ac. & the water. Add the cyanuret of silver. shake the whole in a well stopp'd bottle. allow the mixed port. to subside pour off the clear liquor & keep it for use. It should be kept in air tight bottles & light & heat should be excluded.

Prop^s a liquid, colourless, transparent, volatile, taste 1st cool, a afterwards irritat^g. peculiar smell. It is best kept in bottles of blue glass or the bottle may be surrounded by black paper or covered with black paint. It is incompatible in pers. with nitrate of silver, salts of iron & copper & most of the salts of mercury. Med. Prop^s It is one of the most deadly poisons known, proving often instantaneously fatal. 1 or 2 drops & it kills a voracious dog in a few seconds. In man it produces the following sympt^s. Peculiar bitter taste, increased flow of saliva, irritat^g in the throat & nausea, & in respirat^g pain in the head, giddiness, faintness, obscure vision & tendency to sleep. The pulse is somewhat quicker, & a vein red. It sometimes produces salivation & ulcerat^g of the mouth. In poisoning it acts so rapidly that it can seldom be given. Sympt^s are sudden loss of senses, trismus, difficult & rattling respirat^g. colour of & extremities, a nodule of bitter almonds comes from the mouth, smallness of pulse, swell^g of the neck, dilatat^g & immobility of pupils & sometimes the contract. convuls^g. death. Antidotes, chlorine water or weak solut^g of chlorinated lime or soda internally or externally applied, water of ammonia largely diluted is also given & its vapour cautiously inhaled cold affusion over the head & spine & artificial respirat^g. It is used sometimes in pulmonary inflammation after excitement has been diminished by blood letting. it allays irritat^g & relaxes spasm in asthma hyst^g. coughy chronic asthma, used also in hypertrophy of the heart & aneurism of the aorta also in affect^g.

the stone, with pain & spasm & violent inflammation, but dependent on disordered nerves of that organ. as a wash much better it allays itching & tingling in impetiginous affections.

Dose 106 or 8 drops & solve in dist^d wat. or mix^d with gum wat or syrup. If flatulency, weight at the top of the head, sense of tightness at the stom or faintness are experienced, discontinue its use as a lot or 77xxx to £5j may be dissolved in dist^d wat £5j. Where a fresh part of the med. is used the dose should be decreased to the minimum as the new sample might be stronger than that before. Potassii cyanuretum. Trocysa root of Pot^{ass}. impo^r 2 ℥viij. Dist^d wat £5j. Expose the Troc^{is} to a moderate heat till it is ^{nearly} wholly deprived of its wat. & is a pale yel. put the root in an earthen pot with the heat loosely stopp^d; expose to red heat 2 hours, or till gas ceases to come off, withdraw the root, close the retort with lute all^o or the whole to cool. Break the retort, remove the black mass, & cast it to coarse powder, introduce it into a 12℥ bottle & add the dist^d wat. agitate (for ½ hour) occasionally throw it on a filter evap^{te} the fil^{tr} sol. rapidly to dryness, keep the dry mass in an air tight bottle. Prop^s a white subst., bitter almond taste, alkaline wat. is decompos^d by acids. it is prominently poison^s its applicat^s are the same as those of Hydroc. it is less apt to undergo change a solutⁿ in 8 times its weight of wat. is the most convenient form of administratⁿ. & is of the same strength as the offic^l. Hydrocyanic. ac. dose 2 to 3 drops.

cations. Dose of the officinal hydrocyanic acid, to begin with, two drops every two or three hours, to be gradually increased, if necessary, till evidence of its influence is afforded.

Of the strong acid not more than one-twelfth of a drop should be taken at once.

Cyanuret of Potassium.—*Potassii Cyanuretum, U. S.* Mode of preparation. May be supposed to become hydrocyanate of potassa when dissolved. This is decomposed by any acid, even the carbonic acid of the air. Hydrocyanic acid is thus liberated. As the cyanuret when dry keeps well, it is a good substitute for the officinal acid. Given in solution with a little vinegar. Dose, one-fourth of a grain gradually increased to a grain.

CLASS VIII.

EMETICS.

General Observations.

Medicines capable of producing vomiting, in certain doses, and as an ordinary result, in the healthy state of the stomach. No immediate effects are produced. In 10, 15, or 20 minutes, nausea comes on, with paleness, a cool, moist, and relaxed skin, and a feeble, frequent, irregular pulse. These symptoms increase till vomiting results. During vomiting, the face is flushed, a sense of fullness in the temples is experienced, and the pulse becomes full and slow. After vomiting, the skin is moist, the pulse soft and feeble, the patient languid and disposed to sleep.

Mechanism of vomiting. Explanation of the mode in which it is produced by emetics. Intervention of the brain necessary. Proofs of this.

Emetics often act on the stomach, when applied to the rectum or the skin.

Said to differ from most other medicines in not losing their power upon repetition. Observations going to show that their difference from other medicines in this respect is only apparent.

The susceptibility to the action of emetics is different in different individuals, and in different diseases. Complaints in which this susceptibility is least, and those in which it is greatest.

Therapeutical effects of emetics included under the following heads:—1. Evacuation of the stomach; 2. Mechanical pressure on the liver and other abdominal viscera; 3. Reduction of arterial action during the period of nausea; 4. Muscular relaxation; 5. Promotion of the secretory functions of the skin, lungs, and liver; 6. Powerful agitation of the whole frame; 7. Revulsion to the stomach; 8. Purgation, when the medicine is given in considerable doses, but insufficient to vomit; 9. Depletion, directly by the promotion of secretion, and indirectly by the removal of the food; 10. Irritation of the stomach. Observations and illustrations under each of these heads.

Two or more indications for the use of emetics are often presented in the same disease.

Circumstances contra-indicating the use of emetics, 1. acute inflammation of the stomach, bowels, or neighbouring viscera, 2. strong sanguineous determination to the brain, and 3. pregnancy in its advanced stages. Caution in cases of hernia, and in the use of acrid or corrosive emetics, in large doses, in insensible states of the stomach.

Usually administered diffused in water, and in doses repeated every 15, 20, or 30 minutes, till the emetic effect is produced.

If the object be merely to evacuate the stomach, warm diluent drinks should be given freely, as warm water or chamomile tea; if to produce a powerful impression on the system, with much retching and nausea, little or no drink should be allowed.

Excessive vomiting relieved by the free use of warm demulcent drinks, followed by laudanum or morphia, a spiced plaster or sinapism over the epigastrium; and, if these fail, by an anodyne enema consisting of 60 drops of laudanum with fʒij. of a solution of starch.

1. *Vegetable Emetics.*

IPECACUANHA.

Root of *Cephaelis Ipecacuanha*—a small shrub growing in Brazil and other parts of South America.

Character of the root—shape—size—structure—nature of the surface—consistence of the cortical portion—its translucency, fracture, and relative virtues—relative size of the ligneous portion—propriety of rejecting the smooth portions of stem attached to the root—colour of the root—varieties founded on the colour, *brown*, *gray*, and *red*—all from the same plant—no essential difference in them.

Colour of the powder—odour—peculiar effect in some individuals—taste—relations to water and alcohol—effects of decoction.

Active ingredient, *emetia*, an alkaline principle. Relation to tannin. Inference as to the incompatibility of astringents with ipecacuanha.

Ipecacuanha injured by long exposure to light.

General Considerations.

1st The stomach & the brain. They affect the nerves of the stomach which transmit the influence to the brain which transmits it to the stomach. These actions necessary to vomit. Nausea though referred to the stomach is really an effect of the brain. In proof of which separate the brain from its communication with the stomach it will be impossible for vomiting to take place. Irritation of the brain induced by force does not induce vomiting as strong resist^g cause to vomit. But are subject to the same as the rest regard^g the reception of food & their recept^g. And a dose is sufficient to cause vomiting of irritators consequently upon repetition only is necessary to give small doses to all parts of which the irritability have been changed. The system may be accustomed to the use of Opium. If the dose be exceed^g small & then gradually increased to a degree which is surprising. Diseases of a febrile character with irrit^g stomach invite the act of vomiting as in bilious fevers & white necrosis & in their operation narcotic poisons when not themselves irrit^g to the stomach retard the vomit effect. Mineral poisons are themselves apt to cause vomiting. Emetics are useful to excite the stomach when disordered in any way & are easily indigestible for persons of delicate constitution & accumulate in the stomach as a bilious or the gastric juice itself & accumulate as in dyspeptic persons. 2nd To relieve partial congestion. 3rd The force of the stomach is diminished the absorbent power is increased. 4th This property is sometimes taken advantage of by surgeons to reduce dislocation. It is also useful in spasmodic cases as in spasm of crura of the diaphragm, cramp, hiccough hysterical convulsions &c. 5th It is thus that they are useful in jaundice which is probably dependent on decrease of action of the liver. 6th It is thus means they break the chain of morbid action in intermittents as in remittent & in malarial fevers previous to the period of remission of a paroxysm. 7th By this property they are very useful in cramp & in malarial fevers & in the use of the stomach. Also in asthma, emaciation, emaciation, emaciation. 8th It is desirous to vomit & in their vomit^g are mixed & vice versa. 9th They deplete & are mixed by present^g the acid from entering the circulation. 10th Care must be taken not to excite is permanent irritation. When the stomach is insensible to the vomit^g act. Large doses of corrosive emetics should never be given as they may be the source of violent gastric inflammation though their vomit^g property may momentarily be suspended. Death in 12 hours if vomit^g influence in this respect.

Spicaeantha.

A small shrub with a woody stem 4 to 6 inches in height. The leaves are small, opposite, ovate, entire, and there slender. It is stem 2 or 3 ft long. It is often woody in the middle & usually is less than 1 foot high. The leaves are 3 to 4 inches in length & 1 or 2 in breadth. The leaves are green & rough above, more pale & smooth beneath. The flowers are small white & are solitary or in small clusters. The fruit is a small berry. At 1 ft high, it is nearly black when ripe & contains 2 plano-convex seeds. The flowers are in Jan. & Feb. & the fruit is in a mass. The fruit is in a mass. The fruit is in a mass. The fruit is in a mass. The fruit is in a mass. Bahia & in the mountains. Prop. 4. In pieces 2 or 3 lines in thickness, variously bent & contorted, simple or branched.

has an interior stem, & a branched interior so v. that it is a vascular one. Don't know of a success.
of circular. see also p. 10. R. rugae sparse. The fruit is a deep red. The cal. has
part is hard, myosot. transp., resin. fact + resin. sepals from the lig. of the cal. small in r. in its
medic. prop. The base of the stem is smooth & a slender ^{port} stalk. It should be carefully
before pulp. It is of the prop. The bark is smooth & in markets, the tree is more bitter than the bark
+ the gray is more bitter than the wood. The bark is light in color. The fruit is a deep red. These differences
result probably from diff. of place of growth. When the bark of either variety is prepared with a full
mylarous aspect, the root is less active as a med. light gray-fawn colored. In the aggregate state of the small
in p. it is a red mass. For excit. sm. in p. is a good prep. in the taste it is a very nauseous
Wat. & alcoh. ex. act. it contains, which are y. med. Emetia, the active ppl. of fr. cae. is whit. in color, slightly
bitter, & pulverulent, multivariable in the air, fusible, sparingly sol. in wat. & ether, more sol. in hot wat. & y. sol. in alcohol.
It is precip. by gallic & h. nic acids from its solut. It is very difficult however to obtain it in the state of pure
respon. to the above description. It was originally obtained in the form of of transp. red br. scales, new
in color. It is a bitter lacte, deliques. very sol. in wat. & alcoh. & insol. in ether. It is known in this state as fr. cae.
emetic. + is $\frac{1}{3}$ the strength of the pure Emetia.

Sanguinaria canadensis. The root is horizontal, about 1/2 in. thick, has the finger 1, 2 or 3 in long, fleshy, red^{ish} brown outside, brighter red within, numerous radicles make offsets from the sides which succeed the old plant. The leaf & flower spring up together, the former is i. p. the latter gradually open^d as the former expands, the whole plant is spread with an orange color, which fades from every part when broken. That of the root is of the deep^{est} red. Grows over the whole U.S. & is one of the rarest & most beautiful spring flowers growⁿ in rich soil, shady places & flower^s in March & April. When dried the root is p. the w. wrinkled & thick. red^{ish} brown externally, spongy in every fracture, intern^{al} bright orange become brown

Mild Peps. large doses kill the appetite, in smaller doses it excites the stomach
 and appetite & facilitates digestion. It is used for the purpose of acting upon the bowels.
 It is not so perfectly certain as castor oil is to cause a strong effect in the bowels. It is
 commonly employed two or three times a day in the same manner as castor oil. It is
 a mild emetic & is used in the treatment of the stomach & bowels. It is also used in
 medicine to hasten the discharge of urine in cases where a cathartic has been given. It is
 useful for the little children in the treatment of the bowels. It is also used in
 asthma, cough, &c. & the same may be used as a diaphoretic combined with opium in a wide circle of diseases. It is
 in catarrhs of the stomach & in many other cases. It does not excite the bowels in a chronic
 disease of the stomach & intestinal mucous membrane. The mild dose is not conveniently given in powder suspended
 in water in the quantity of grxx every 20 min. till it operates. Some persons are peculiarly susceptible to its opera-
 tion. A much smaller dose per os suffices. It operates readily & is facilitated by copious draughts of warm
 water or warm chamomile tea. In oil of poppy 3ij. to Wal 5vj. in dose of 5j. as above
 is also an emetic. To produce nausea give grj. in a tinct. repeat 4 or 5 times to circumstances. Diaphoretic
 dose grj. &c. Emetica has been substituted for pepsin but with advantage its action is violent & it in
 over doses may prove fatal. Mild dose of 1/2 p. in 1/2 grss. of poppy 1/2 grss.
 An ointment of 1 part. powder. 10 oil 2 hard. rub once or twice a day on the skin for a few minutes & soon
 as a count. irritant, produce copious eruption with pain or ulceration. Vinum Specac. Take of
 bruised Specac 3ij. Sherry Wine Oij. Macerate 4 days with occasional agitation. Strain the liquor paper
Syrupus Specac. Specac in coarse powder 3j. Dilute Alech Oj. Syrup Oij. Macerate the Specac in the Alech
 4 days, filter & evaporate to 2 1/2 j. of Alech again mix it with the syrup & evaporate by a water bath to the proper
 consistence. It is also prepared by putting the Specac previously moist with the Alech in a spirit apparatus
 for 2 good spirits Dilute Alech till it is 1/2 li. C. is obtained evaporate to 2 1/2 j. then proceed as above. It is
 chiefly applicable to children. Mild dose for an adult 1 to 2 1/2 3. for a child of 1 or 2 years 1 to 2 1/2 3. repeat
 every 15 or 20 min. till it operates. Expectoration for adults 1 to 2 1/2 3. for a child 1/2 to 1 1/2 3.

Gillia.

The dried root is the thickness of a quill wrinkled longitudinally with occasional transverse fissures & in the other
 places present in some places an irregular knotty appearance. It is brown in the interior & is covered with a com-
 monness or the other. When it is broken it consists of a thick, white, brittle substance. It is an inferior slender tougher
 with a lignous core. The bark is bitter but not disagreeable, the wood is insipid & is a little adhesive. It is brown
 in the interior which is scarcely perceptible in the cold water Alech extract. It is used in the decoction with the Alech & a red
 wine color. Mild Peps. a mild & officinal emetic occasionally acts upon the bowels. In very small doses it is supposed to act as
 a tonic. It is used as a substitute for Specac in the country when the latter is not readily obtainable. It is
 the same as the above. repeat the dose every 20 min. till it operates.

Effects on the system. Character as an emetic. Therapeutical applications.

Dose as an emetic, from 15 to 30 grains—as a nauseating medicine, 2 or 3 grains—as a diaphoretic or expectorant, from one-half a grain to 2 grains—as an alterative, from one-fourth to one-half a grain, 2, 3, or 4 times a day.

Wine of Ipecacuanha—*Vinum Ipecacuanhæ, U.S.*—may be given as an emetic in the dose of $f\overline{3}j.$ to an adult, and $f\overline{3}j.$ to an infant, though seldom used for this purpose. More commonly employed in smaller doses as a diaphoretic and expectorant.

Syrup of Ipecacuanha—*Syrupus Ipecacuanhæ, U.S.*, given in half the dose of the wine.

GILLENIA. U.S.

Root of *Gillenia trifoliata*—an indigenous, herbaceous, perennial plant, called *Indian physic*, and sometimes *American ipecacuanha*. The root of the *G. stipulacea* has the same properties. The former grows in the Atlantic States, the latter in those of the West.

Shape of the root—size—nature of the surface—colour—difference between the cortical and ligneous part—taste—odour—colour of the powder—relations to water and alcohol.

Character as an emetic. Therapeutical applications. Dose, from 20 to 30 grains.

LOBELIA. U.S.

Lobelia inflata—*Indian tobacco*—an indigenous, herbaceous plant. General character of the plant. All parts of it are active. Time of collection.

Colour of the powder—odour—taste—relations to water and alcohol.

Character as an emetic. Poisonous effects. Therapeutical applications. Given in substance, infusion, and tincture. Dose of the powder as an emetic, from 5 to 20 grains. Dose of the tincture (*Tinctura Lobeliæ, U.S.*) in asthma, from $f\overline{3}j.$ to $f\overline{3}ij.$ every 2 or 3 hours till it acts.

Besides the above emetics, numerous other substances possess the property of producing vomiting, and have been employed for that purpose. Among them may be mentioned the following, viz.

The root of *Euphorbia Ipecacuanha*, and of the *E. corollata*—indigenous plants—emetic in the dose of from 10 to 15 grains. Disadvantages.

The root of *Sanguinaria Canadensis*, or blood-root—another indigenous emetic plant. Shape of the root—colour—colour of the powder—odour—taste. Active ingredient, an alkaline principle called *sanguinarina*. Character as an emetic. Dose of the powder, from 10 to 20 grains—of the tincture, from $f\overline{3}ij.$ to $f\overline{3}ss.$

Squill is emetic in the dose of 6 or 8 grains; but is scarcely ever used for this purpose.

Tobacco is also powerfully emetic, but in consequence of the excessive nausea it produces, and its narcotic properties, it is almost never prescribed internally. Dose of the powder, 5 or 6 grains.

Mustard sometimes acts as an emetic, in the form of powder, in the dose of $\overline{3}j.$ Therapeutical application in reference to its emetic property.

2. Mineral Emetics.

TARTAR EMETIC.

Before treated of as an arterial sedative. To be considered here only as an emetic and nauseant.

Character as an emetic—certainty, power, durability. It produces much retching and frequent efforts to vomit, makes a strong impression on the neighbouring viscera and the general system, and occasions much relaxation and prostration of strength.

The indications for its use, deducible from its peculiar mode of operating, are, in addition to the evacuation of the stomach, to agitate and compress the liver, spleen, and other abdominal viscera, to divert irritation from its existing seat by a powerful revulsion to the stomach, to break up morbid associations, to produce nausea and consequent relaxation, and to evacuate the duodenum as well as the stomach. Illustrations of these indications in particular diseases. Tartar emetic is more apt than ipecacuanha to act on the bowels.

Medium dose as an emetic, 2 or 3 grains. The best plan is to give 1 grain, dissolved in a little water, every 15 or 20 minutes till it acts. Often combined with ipecacuanha. A good proportion is 1 grain of the antimonial to 10 of ipecacuanha, repeated as above.

Dose of *antimonial wine*, as an emetic, $f\overline{3}j.$, or $f\overline{3}ss.$ repeated in 20 minutes if the first dose should not act. Seldom given to adults as an emetic. Dose for a child 1 or 2 years old, from 20 to 40 drops.

SULPHATE OF ZINC.

The tonic and astringent properties of this salt before treated of.

Characterized as an emetic by its promptness, and the comparatively little nausea which

it produces. Exerts less influence over the system than tartar emetic, and therefore less extensively applicable in disease. Used chiefly as a mere evacuant of the stomach in cases requiring a prompt and energetic emetic, as in those of the narcotic poisons. Under such circumstances, it should be combined with ipecacuanha. Dose, 10 grains under ordinary circumstances; but, in cases of insensibility of stomach from narcotic poisons, \mathfrak{z} ss. Reason why it should not be indefinitely increased in such cases.

SULPHATE OF COPPER.

Before considered in reference to its tonic properties. As an emetic, characterized by its very great promptness, and by the very slight nausea which attends its action. Resembles in properties the last mentioned salt, though even more prompt and powerful. Used almost exclusively in cases of poisoning from narcotics. Dose from 2 to 3 grains in ordinary states of the stomach—in poisoning from narcotics, from 5 to 15 grains. Caution as to increasing the dose more necessary even than with the sulphate of zinc.

Many other mineral substances possess emetic properties. The acrid or corrosive poisons, such as corrosive sublimate, verdigris, and the arsenical salts, when taken in large doses, usually excite vomiting. But they are dangerous, and are never used for this purpose.

The *Turpeth mineral*, or *yellow sulphate of mercury*, has been used, but is now abandoned. It usually proves emetic in the dose of 5 grains, but is uncertain.

The metal should be in a quantity increased from the reason that though the stone may not be
susceptible to its emetic effect yet the metal is not idle & violent inflammation & even diarrhoea might
follow from a large & continued dose as an overdose.

Cupri Sulphur.

See page 26. and page 19.



CLASS IX.

CATHARTICS.

General Observations.

Medicines which produce evacuations from the bowels. They operate in various ways; —1. by simply irritating the mucous membrane of the bowels, the muscular coat of which is brought into sympathetic action; 2. by stimulating the exhalent vessels and mucous follicles of the intestines to increased secretion; and 3. by a similar stimulant influence upon the liver, and perhaps the pancreas. Some cathartics act in one of these ways, some in another, and some combine two or more modes of action.

Cathartics differ as to the parts of the alimentary canal on which they act, some affecting the upper portion more particularly, some the lower, and others operating equally on all parts. This difference is partly, perhaps, ascribable to difference in solubility; but is chiefly owing to the peculiar susceptibilities of different portions of the bowels.

The character of the discharges varies with the kind of cathartic used. Medicines acting on the large intestines produce consistent fecal evacuations, those acting chiefly on the peristaltic motion discharge the liquid contents of the bowels, those which stimulate the exhalents give rise to large watery evacuations, and are hence called *hydragogues*, while calomel, acting especially on the liver, produces bilious stools. Mucous or bloody stools result from the use of the more violent and irritating cathartics.

Cathartics differ greatly in their power. Some act mildly, merely producing looseness, and are hence called *laxatives*; others act with greater energy, and are called *purges*; and a third set, which are most powerful and irritating, are distinguished by the name of *drastics* or *drastic purges*. Observations upon this difference.

Cathartics are useful in disease in several ways.

1. They evacuate the bowels, and thus relieve constipation and all its attendant evils, as well as remove irritating substances, and those having a depressing influence on the system, whether introduced by the mouth, or resulting from chemical changes going on in the alimentary canal, or the product of deranged secretion. Explanations and numerous illustrations of this action of cathartics.

2. They directly deplete from the blood vessels, by increasing the action of the intestinal exhalents, and thus reduce arterial excitement, and they indirectly deplete by removing the sources of the chyle by which the constant drains from the blood-vessels are supplied. Hence their use in almost all febrile complaints of an inflammatory character, in plethoric cases, and in inflammations even unattended with fever.

3. They promote absorption by diminishing the quantity of the circulating fluid, and thus prove useful in dropsy.

4. They act powerfully as revulsives, producing a gentle irritation over the whole tract of the alimentary canal, which, while it is usually safe to the patient from its mildness, is energetic in its revulsive influence by its extent. Particularly useful in this way in affections of the head, they are beneficial also in all cases of local inflammation, except those in which the alimentary canal itself is involved in the disease.

5. Some cathartics act favourably by increasing secretion from the liver, and thus relieving congestion of this viscus, and of the portal system generally.

It often happens in disease that cathartics are called on to meet several indications in the same case.

General observations on the importance of cathartics.

The action of the different cathartics modified by combination. By mixing several drastics together, they become milder in regard to their irritant property, without losing any of their purgative power. Explanations of this fact.

Small doses of emetic medicines promote the operation of cathartics. The same effect is produced to a certain extent by bitters.

Cathartics are sometimes favourably modified by combination with substances which exert a chemical agency upon them.

Their tendency to gripe may be lessened by combination with aromatics—and their nauseating effects by the same medicines, and by carbonic acid water.

Cathartics operate most speedily and favourably when given on an empty stomach.

Susceptibility to their action is diminished during sleep, and is increased by exercise.

Hence, when a very prompt effect is desirable, they should be given in the day time, on an empty stomach; when a slow operation, with as little inconvenience to the patient as possible, is required, they should be given at bedtime.

During their operation, or before it, the patient should drink some mild diluent beverage, as molasses and water, barley-water, oatmeal gruel, &c.

Hypercatharsis may be checked by from 5 to 15 drops of laudanum by the mouth, or three times the quantity administered by the rectum.

1. *Vegetable Cathartics.*

Observations in relation to *bran*, *sugar*, and *molasses*, as laxative articles of diet.

MANNA. *U. S.*

Concrete juice of *Frazinus Ornus*, and other species of *Frazinus*, growing in Sicily, the South of Italy, and Greece. Mode in which the manna is procured. Difference in the result according to the season. Three varieties of manna described; 1. *flake manna*, 2. *common manna*, 3. *fat manna*. Distinguishing characters of these varieties.

Odour of manna—taste—relations to water and alcohol—effects of heat.

The saccharine principle peculiar. Called *mannite*. Mode of preparing mannite—colour—taste—solubilities—difference from sugar in relation to the process of vinous fermentation.

Characters of manna as a cathartic. Therapeutical applications. Dose, $\mathfrak{z}\text{j}$. or $\mathfrak{z}\text{ij}$. Usually given in combination.

SACCHARINE AND ACIDULOUS FRUITS.

General observations on these fruits in their recent and dried state. The following particularized:—*Dried Peaches and Apples*, *Tamarinds*, *Raisins*, *Figs*, and *Prunes*. The last considered as the best of these fruits as a laxative. Cases in which they are particularly applicable.

PURGING CASSIA.—CASSIA FISTULA. *U. S.*

Fruit of *Cassia Fistula*—a large tree growing in the West Indies and East Indies.

Character of the fruit—shape and size—colour—internal structure—disposition of the pulp.

Mode of extracting the *pulp*—its colour, odour, and taste—its character as a cathartic—and its therapeutical applications. Dose as a gentle laxative, $\mathfrak{z}\text{j}$. or $\mathfrak{z}\text{ij}$.—with a view to a more powerful effect, $\mathfrak{z}\text{j}$. or $\mathfrak{z}\text{ij}$. Seldom given alone. An ingredient of the Confection of Senna.

CASTOR OIL.—OLEUM RICINI. *U. S.*

Product of *Ricinus communis*. Character of the plant—native place—where cultivated. Shape and size of the seeds—colour of the surface—internal structure—modes of extracting the oil.

Properties of the oil—consistence—colour—odour—taste—solubility in alcohol. Mode of detecting adulterations.

Character as a cathartic. Therapeutical applications. Dose for an adult, $\mathfrak{f}\mathfrak{z}\text{j}$.—for a child of three or four months, $\mathfrak{f}\mathfrak{z}\text{j}$. or more. The dose is larger in proportion for children than for adults. Modes of administration.

Observations in relation to *Olive Oil*, *Linseed Oil*, and *Melted Butter*.

RHUBARB.—RHEUM. *U. S.*

The root of different species of *Rheum*—possibly of *R. palmatum*, *R. compactum*, and *R. undulatum*—herbaceous perennial plants, growing in Central Asia, and cultivated in Europe.

Age at which the root is dug up—preparation for the market—routes by which it reaches us. Varieties, 1. *Russian*, 2. *Chinese*, and 3. *European Rhubarb*.

Russian Rhubarb. Care in its preparation—shape of the pieces—nature of the surface—character of the hole penetrating them—texture—fracture—colour—colour of the powder—odour—taste—effect on the saliva—feel under the teeth—comparative cost.

Chinese Rhubarb. Shape and size of the pieces—object of the hole through them—appearance of the surface—texture—internal colour—colour of the powder—odour—taste—effects on the saliva—feel under the teeth. This variety most used. Its comparative value. Its greater liability to be mixed with worm-eaten, rotten, or defective pieces.

Manna.

The concrete juice of *Ornus Europaea*. L. S. Pharm. It is collected from the *O² Rotis* diff. is the *Gracimus* exalbia the *F³ latiflorus* etc. The *Ornus Europaea* or *Gracimus* *Ornus*, or flower? This is a tree 20 to 25 ft high, very branched, with opposite leaves composed of 3 or 4 pairs of leaflets or an odd one at the end. The leaflets are oval $\frac{1}{2}$ inch^s long, smooth bright green. The flowers white and expand at the same time with the leaves, but in the hot months the juice exudes spontaneously from the bark, & concret^s upon its surf. to facilitate the process deep longitudinal incisions are made on one side of the trunk. In the following season these are repeated on the other side & thus alternate for 30 or 40 years. Straws or clean chips are often placed so that the juice may be received & concret^s upon them. It varies much according to the mode of collection, the nature of the season & the period of the year when it takes place. Sicilian Manna is said to be the best. Flake manna or *Manna cumulata* is the purest variety. It exudes spontaneously or by incisions during the hottest & driest part of July & Aug. It is in irregular pieces, often several inches long, somewhat resembling stale lard, rough, light, is round, brittle when it is new & white, sometimes covered on the surf by which they were attached to the bark & which is often soil & impurities, & met^s by other fragments of the bark. Structure, crystalline or granular, it is sometimes in fragments less than a inch long. Common Manna is next best, collect^d in Sept. & early Oct. when the heat has begun to moderate. The juice not concret^s so fast a part falls to the ground & becomes rancid, the impurities form masses which require further drying in the sun. It consists of white & yellowish fragments mixed with a soft, viscid, uncrystallized brown matter identical with the formed *Sat. Manna* which is collect^d in the latter part of Oct. & Nov. the weather being colder & rains more common. The juice flows from the trunk & is received in a small excavation at its base forming a viscous mass of fulvous or yellowish brown color with few crystalline fragments & full of impurities. *Prop^s* slight precipitate. Sweet taste which in the impure kind is very nauseous. Sol. in 3 parts cold & its own weight boil^d. K. sol. in 4 or 5 h. melt with heat & burns with a blue flame. Mannaite is white, insol^{ble} in semi-rancid nearly sweet taste, sol. in 5 parts cold water scarcely sol. in cold aleoh. incapable of vinous fermentation. *Prep.* boil manna in aleoh. till the surf. is dry. remove the crust^{ve} precipitate which forms. pure mannaite is now formed, it is gently laxat^{ve}. dose. $\text{ʒ} \text{ss}$ to $\text{ʒ} \text{ij}$. *Mell. Drop^s*. Manna is gently laxative, though sometimes produces flat^{ulence} & pain, though being adapted to children & pregnant women it may be advantageously given in small doses from its consipat^{ve} & the mucous symptom. It is gently prescrib^d with summer chub^{er} magnesia & the neutral salts to moderate their taste & promote their operation. adult dose $\text{ʒ} \text{ss}$ to $\text{ʒ} \text{ij}$. child dose $\text{ʒ} \text{ss}$ to $\text{ʒ} \text{iv}$. given in subst or dissol^d in water or an aromatic

Alstonia Mercurialis

It is a tree 10-12 m. tall, with a thick, grey bark, and a smooth, green, glossy leaf. The fruit is a large, round, green, fleshy berry, which is eaten by the natives. The bark is used for the extraction of a resinous substance, which is used for the preparation of a medicine for the treatment of various diseases.

The tree is found in the low-lying, swampy, and marshy areas of the coast. It is a very common tree, and is found in large numbers. The bark is used for the extraction of a resinous substance, which is used for the preparation of a medicine for the treatment of various diseases. The fruit is a large, round, green, fleshy berry, which is eaten by the natives. The bark is used for the extraction of a resinous substance, which is used for the preparation of a medicine for the treatment of various diseases.

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1° Cape Aloes - product of A. spicata + found here in the same is mixed with a sharp, resinous, and is used for the preparation of a medicine for the treatment of various diseases. The bark is used for the extraction of a resinous substance, which is used for the preparation of a medicine for the treatment of various diseases. The fruit is a large, round, green, fleshy berry, which is eaten by the natives. The bark is used for the extraction of a resinous substance, which is used for the preparation of a medicine for the treatment of various diseases.

Saccharine and Acidulous Fruits.

Three peaches stewed in sugar is an excellent laxative. Ricle of diet. convalescence. the 2. theophilus ls.
Jamaindus. preserve fruit of Jamaindus indicæ, for a only pieces of this genus a tree of great size with numerous
spread branches of leafy branches. The bark is thick, furrowed with a rough ash. The leaves are composed of
many opposite pairs of opposite leaflets. 5. 6. broad 1/2 inch long, of a yell^h green col. flowers small & yell^h. fruit a hard compo-
sition, curved, from 2 to 6 inch long, reddish col. with numerous brownish, quadrangular seeds, narrow in the middle
at the ends. Native of India. Prop³ they are very useful place the pods deprived of their shell
in layers in a cask or jar. Will's supposes them a better plan is to place them in stone jars with all sorts of acids
of preserved sugar. Prop³ fresh have an agreeable & a taste with any mixt^{ure} of sweetness, preserved for a dark
col. adhesive mass, consists of pulp, & a number of seeds of the pod have a sweet acid taste. The seeds
should be well cleaned & not swallow the string. The entire & the sweet with mostness. Med Prop³ they are
laxative & refresh & infused in wat form a grateful drink in febrile diseases. the pulp is given to convalescents as a most
icle of diet to preserve the bowels in a loose condition given in connexion with other cathartics. It is liable to weaken the
influence of resinous cathartics in gut. Dose. 5j to 3j or more.

Uva Passa. The chief use of raisins is to flav^{or} & demulcent beverages, in substance they are gently laxative, but are
also flatulent & diffusive. Topical use & laxative when they sometimes produce unpleasant effects, especially in children.

Ficus. The fig tree attains from 12 ft to 30 ft height. The trunk rarely exceeds 9 inch diam. numerous branches, brown
ash col. bh. large & opposite leaves. fruit is top shaped, size of a small pear, of whit^h, yell^h or redd^h col. & a milky muc
ilaginous, saccharine flavor. ripens from the lower part. When ripe they are dried by the sun or in ovens, & sold in
drums or boxes for export. The best are yell^h or brown, somewhat flattened when held to the light. They are
more saccharine than the fresh fruit. their chief constituents are mucilage & sugar. Med Prop³ they are nutritive
& emollient. in the fresh state they are a wholesome & agreeable article of diet. Dried figs too freely eaten cause flat
pain in the bowels & a vertigo. their proper use is as a laxative article of diet in constipation. roasted or boiled & split open they form
a suppurative cataplasma to parts where ordinar^y poultices cannot conveniently be retained.

Prunum. As they impair their laxative property to wat in which they are boiled, they serve as a pleasant use I add it
to purgative decoctions, the pulp is used in making laxative confections their use & effects on the same is the same.

Cassia Fistula.

A tree 40 or 50 ft high. trunk of hard hear, wood divided towards the top into numerous branches smooth ash
col^h bh. the leaves are composed of 5 or 6 pairs of opposite leaflets which are pointed, smooth, 1 or 2 inch long & from
3 to 5 inch long. flowers large & golden yell. fruit long, cylindrical, woody, dark brown, pericarp³ pods which when
separated but the wood produce a noise which is heard at a considerable distance. Native of upper Egypt & India where
it has been cultivated for the use in climates of the whole world. Prop³ Cassia pods are a foot or more long straight
or but slightly curved, cylindrical less than an inch in diam. with a woody shell dark brown - external mark with
3 longitudinal sin^{us} in the middle of the length of the pod, 2 of which are so closely approximated as to seem to be but one

[illegible]

the 3^d being on the opposite side of the pod. There are also circular depressions at unequal dist^s. In term^t it is divid^d into cells by thin transverse plates, which are cover'd by a soft, black pulp, sac^{le} cell^s chains 1 sh^d, oval seed. The 2^d & 3^d pods are the small^r, better kind & have a blacker pulp. The heaviest pod & those which do not make a rattling noise when shaken are the best. The pulp should be sh^d black & sweet. It soon loses its sweet^{ness} & becomes mouldy if kept in damp places. To extract the pulp, break the pods then boil in wat. & separate the coats, or when the pods are fresh open them at the sutures & remove the pulp with a spatula. It has a slight, rather sickly, & sour & sweet mucilag^{ous} taste.

Med. Prop^s gently laxat^{ive} is given in small doses for habitual costiveness. in purg^{ing} doses it nauseates & causes flat^{ulency} & grip^s. It is not much used except to prepare the confection of Senna which is a very pleasant & useful laxat^{ive}. ^{Prep^d dose of pulp 3j to 3ij. Purg^{ing} dose 3j to 3ij.}

Caum Nigri

In the E. Ind. it grows 30 or 40 ft high, but in cooler climates is as follows. The stem is vigorous, erect, round, hollow, smooth, glaucous purplish towards the top & 3 to 6 ft or more high. Leaves alternate, support^{ed} on look stalks inserted into their lower disk, smooth & bluish green. The flowers form a pyramidal, terminal raceme. of which the male flowers occupy the lower part, & the female the upper. The fruit is a round, glaucous capsule with 3 project^{ing} sides cover'd with tough spines, divid^d into 3 cells each contain^{ing} one seed, which is separ^{ated} by burst^{ing} the capsule. It is largely cultivat^d in N. Jersey, Virginia, N. Carolina & the states upon the right bank of the Ohio. It flowers in July, seeds ripen in Aug. & Sept. The fixed oil of the seeds is the part employed.

The Seeds, size of a well blown, oval, compress^{ed}, smooth, sh^d gray or ash color, marked with red brown spots & veins. From a small yell^{ish} tub^{er}cle at one end of the seed proceeds an obscure longitudinal ridge divid^d the sides upon which it is situat^d into 2 flatt^{ed} surf^{aces}. The seed resembles the tick. The kernel is oleagin^{ous} & sweet when follow'd by a slight acrimony. rancid seeds are unfit for use: taken intern^{ally} the seeds are powerfully cathart^{ic} & often emul^{sion}. 2 or 3 will purge, 7 or 8 act with violence. this prop^{erty} is owing to an acrid, volatile ppt which is dissipat^{ed} by the heat of boil^{ing} wat. Prep^d of the Oil, by decoct^{ing} as usual is done in the E. & A. Ind^{ies}. The seeds are 1st depriv^{ed} of their husk, then boil^{ed} in wat. the oil being strain^d off & riseⁿ - then 2^d off, it is reboil^{ed} with a little wat to dissipate the acid ppt to increase the product the seeds are smelt^{ed} - cast^{ed} in rendering the oil brown, as also the 2^d boil^{ing} before mention^{ed} unless care is taken to remove it soon after the evap^{oration} of the wat. Hence the India oil is yel^{low} brown & rancid & irritat^{ing}.

2^d By Expression. The seeds are 1st put in a shallow iron reservoir & submitt^{ed} to a heat which the hand can bear, then a transfer to a screw press, a whit^{ish} oily liquid is obtain^{ed} which is transf^{erred} to clean iron boilers support^{ed} with considerable wat. the mixt^{ure} is boil^{ed} for sometime, the impurities rise & are skim^{med} off. the mucilage & starch are dissolv^{ed} in the wat. the albumen is coagul^{ed} by the heat, form^{ing} a whit^{ish} layer between the wat & the oil which is not transpar^{ent} on the top. the oil is reboil^{ed} with a minute quant. of wat. it is barrel^{ed} & sent to market. Much American oil is prep^d by merely allow^{ing} it to stand some time after sox press^{ed} & drawⁿ off the supernat

The effect of the extract of the root of the *Senna* is to purge the bowels and to increase the secretion of bile. It is a cathartic of the first class and is used in the treatment of constipation, biliousness, and other disorders of the digestive system. The dose is from ʒi to ʒss. It is also used in the treatment of the skin diseases, such as eczema and psoriasis. The extract is prepared by macerating the dried leaves and seeds of the plant in a mixture of alcohol and water for 24 hours, then filtering and evaporating to a syrupy consistency.

The *Senna* is a plant of the family *Cassia*. It is native to the East Indies and is cultivated in many parts of the world. The leaves are large and pinnate, and the seeds are small and round. The plant is known for its laxative properties and is one of the most commonly used herbs in traditional medicine.

The extract of the root of the *Senna* is a powerful cathartic and is used in the treatment of constipation, biliousness, and other disorders of the digestive system. It is also used in the treatment of the skin diseases, such as eczema and psoriasis. The dose is from ʒi to ʒss. It is also used in the treatment of the skin diseases, such as eczema and psoriasis.

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liquid. 3^d by alcohol, as practised in France; by this means it becomes more speedily rained than by the 1st & 2^d.
Prop^s: Castor oil is thick, viscid, colourless, little or no odor, in a mild though nauseous taste followed by slight sense
of acrimony. As some found in shops it is yell. & of implead. smell or brown with a acid taste. cold does not
readily congeal it. exposed to the air it slowly thickens with time. It is as a dry oil. is heavier than the
fixed oils & diff^r from them in being sol^l in all proport^{ns} in cold absolute alcohol by which prop^s are alter^d.
ations with the fixed oils is discovered; this rarely if ever happens in the U.S. it is sol^l in sulph^r then derive castor
oil may be rendered milky by boil^g it with a little wat. it kirked filter through paper, it is rancid as it is apt
to become by expos^{re} to air it is unfit for use. Med Prop^s: a mild & speedy cathartic. evacuat^s the
bowels with much increas^d the alvine secret^{ion} & a little pain & uneasiness. Hence its use in constipat^{ion} from
collect^{ion} of indurated feces or where acid subst have been swallowed or a acid secret^{ion} have accumulat^d in the bowels.
used where there is irritat^{ion} or inflamat^{ion} of the bowels as colic diarrh^{ea}, dysent^{ry}, & enteritis. used in cases of pregn^{ancy}
& puerperal women, is the best & safest cathart^{ic} for children. mode of administrat^{ion}. 1. put a little mint or cinnamon
wat in a wine glass, wet the sides of the glass well. introduce the oil & add thin by a wat. with the addⁿ on the
top a little more cinnamon or mint wat. & swallow as soon as possible. 2. give it in hot sweeten^d coffee
if the stom^{ach} is very delicate make a emulsion of the oil with mucilage or yolk of egg, loaf sugar & some
aromat^{ed} wat. caution may be add^d if there be in test irritat^{ion} given in enema in dose of 1 to 3 ℥. mix with
some mucilag^{ous} liquid. Olive oil is purgative but in much larger doses. Sunseed oil, is little used in conse^{quence}
of its exceed^{ingly} unagreeable od. Melt^d Butter thrown into hot wat & stir^d till well melt^d & wash^d of the
salt it may contain, strain mee off & use it in the same mode given in dose of a table spoonful. if
melted by direct applicat^{ion} of heat as in a pan over the fire it requires irritat^{ion} powers.

Rheum.

It is collect^d when it has attain^d the age of 6 years. It is dug up in Tartary in the spring & autumn in China
in the winter. It is a tree & deprived of its cortical part. & of its smaller branch divided into pieces, bored & strung on cords to dry
it loses a great prop^{rtion} of its weight in dry^{ing}. The chubark trade centres in Si-nin thence to Kiachta & to Canton.

Russ^{ian} Rhub^{us}: The best is select & perfect to respect the centre of the piece from Si-nin it goes to Kiachta where it is examined
by the Russian government apothecary that which is condemned is burnt. This variety is also known as the high rhub^{us} has been
formerly brought by caravan Tartary through Persia & Koklia to Sinkiang. The pieces are irreg^{ular}. They have a cleaner
fresh appearance & a more lively col^{or} than the Chinese. mass compact & heavy. the pericarp is larger & some times reach^s
the circumference of the root & is not so firm. For inspect^{ion} that of the U^{ss} is smaller & is better for the sugar coat. The U^{ss} is
more round than the Chinese is not well with the iron. The texture is rather spongy rough fract^{ure}, bitter
astring^{ent} astring^{ent} stains the skin yellow. It is used in the tea. It is the most expensive variety.

Chin^{ese} Rhub^{us}: It is in cylindrical or round pieces, some flat at one or both ends, rtyl^{ical} or a yell^{ish} exterior. It
as if the piece is thin & is small & is not so firm. It is used in the tea. It is the most expensive variety.
The U^{ss} is the most expensive variety. The U^{ss} is the most expensive variety. The U^{ss} is the most expensive variety.

European Rhubarb. Shape and size of the pieces—density—appearance of the fractured surface—colour of the powder—odour—taste—effect on the saliva—feel under the teeth. Inferior to the others as a purgative; but sometimes preferred for chewing. Reason of this.

Chemical constitution of rhubarb. The active ingredients probably a peculiar principle called *rhubarbarin* and *tannin*. Other principles are gum, starch, oxalate of lime, &c. The European has most tannin, and least of the colouring and purgative principle.

Relations of rhubarb to water and alcohol.

Peculiar properties as a cathartic. Therapeutical applications. Cases in which it is contra-indicated. Dose as a stomachic and laxative, from 5 to 10 grains—as a purgative, from 20 to 30 grains. That of the European variety, double. Given in powder with syrup or molasses, or in pill made with soap or simply with water. The root chewed habitually by some persons affected with costiveness.

The officinal preparations are, *Infusion of Rhubarb* (*Infusum Rhei*, U. S.)—*Tincture of Rhubarb* (*Tinctura Rhei*, U. S.), given as a laxative in the dose of $f\overline{3}j$, or $f\overline{3}ij$, as a purge $f\overline{3}ss$, or $f\overline{3}j$ —*Tincture of Rhubarb and Aloes* (*Tinctura Rhei et Aloes*, U. S.), formerly called *elixir sacrum*, given in the same dose as the preceding—*Tincture of Rhubarb and Gentian* (*Tinctura Rhei et Gentiana*, U. S.), in the same dose—*Tincture of Rhubarb and Senna* (*Tinctura Rhei et Sennæ*, U. S.), commonly called *Warner's Gout Cordial*, in the same dose—*Syrup of Rhubarb* (*Syrupus Rhei*, U. S.), given in the dose of $f\overline{3}j$, or $f\overline{3}ij$, to children—and *Aromatic Syrup of Rhubarb* (*Syrupus Rhei Aromaticus*, U. S.), commonly called *spiced rhubarb*, also given in the same dose.

Effect of roasting on the purgative and astringent properties of rhubarb.

SENNA. U. S.

Leaves of several species of Cassia, viz. *C. acutifolia*, *C. obovata*, and *C. elongata*—small shrubs growing in Africa and Arabia. Three commercial varieties—*Alexandria*, *Tripoli*, and *India senna*.

1. *Alexandria senna*. Place of collection and preparation for market—port of shipment—constituents—distinguishing characters of the constituents.

2. *Tripoli senna*. Place of export—distinguishing characters.

3. *India senna*. Origin—commercial history—distinguishing characters.

Garbling of senna—its odour—taste—colour—colour of the powder—relations to water and alcohol—effects of exposure.

Active ingredient, a peculiar principle called *cathartin*.

Character as a cathartic. Therapeutical application. Dose of the powder, $\overline{3}j$. Seldom used in this form. Generally given in infusion. Official formula for the infusion. Dose, $f\overline{3}iv$, every 4 or 5 hours till it operates, or $f\overline{3}ij$, every 2 hours. Mode of counteracting its griping effect. The *Tincture of Senna and Jalap* (*Tinctura Sennæ et Jalapæ*, U. S.), formerly called *elixir salutis*, given in the dose of $f\overline{3}ij$, or $f\overline{3}ss$.

Confection of Senna—*Confectio Sennæ*, U. S. Constituents—preparation—sensible properties—practical applications—dose, $\overline{3}j$, to $\overline{3}ss$.

Syrup of Senna—*Syrupus Sennæ*, U. S. Given to children in the dose of $f\overline{3}j$, to $f\overline{3}ss$.

AMERICAN SENNA.—CASSIA MARILANDICA. U. S.

Leaves of *Cassia Marilandica*—an indigenous herbaceous plant. Period for collecting the leaves. Shape, size, and sensible properties—relations to water and alcohol.

Similar to senna in virtues and uses, but weaker. Given in infusion. Dose, one-third greater than that of senna.

EXTRACT OF BUTTERNUT.—EXTRACTUM JUGLANDIS. U. S.

Extract of the inner bark of the root of *Juglans cinerea*—an indigenous tree.

Sensible properties of the bark—mode of preparing the extract—its colour, odour, and taste.

Character as a cathartic. Therapeutical applications. Dose, 20 or 30 grains as a purgative, 10 or 12 grains as a laxative.

ALOEES.—ALOE. U. S.

Inspissated juice of the leaves of different species of *Aloe*—particularly *A. spicata*, *A. Socotrina*, and *A. vulgaris*. Character of these plants. Native places, and countries in which they are cultivated. Different modes of collecting and preparing aloes. The mode which yields the best, and that which yields the worst aloes. Three commercial varieties, viz. *Cape Aloes*, *Socotrine Aloes*, and *Hepatic Aloes*.

Cape Aloes. The plant which yields it—mode of preparation—place of export—state in which it is imported—state as kept in the shops—appearance of the surface—fracture—colour of the fracture—translucency of the edges—colour of the powder—odour—taste—effects of heat and cold on its consistence.

2. *Socotrine Aloes*. The plant which yields it—place of production—place of export—colour and nature of the surface—fracture—effects of exposure on the colour—translucency of the edges—colour of the powder—odour—taste—effects of heat and cold on its consistence.

3. *Hepatic Aloes*. Origin of the name—sources—places of production—colour—nature of the surface—edges—odour—colour of the powder.

Chemical constitution of aloes. The active part, a peculiar extractive matter. Relations of this principle to water and alcohol. Change produced in it by exposure to air, and by heat. A little volatile oil in the Socotrine aloes. Character of the remaining portion.

Relations of aloes to water and alcohol—effects of decoction upon it—permanence of the infusion.

Characters as a cathartic. Tendency to the pelvic viscera. Mode of operating. Complaints in which it is contra-indicated. Therapeutical applications. Peculiarity as to the dose. As a laxative, given in the dose of from 2 to 6 grains—as a purgative, from 10 to 15 grains. Usually administered in pill.

The official preparations are, *Pills of Aloes and Assafetida* (*Pilulæ aloës et Assafetida*, U. S.), given in the dose of from 10 to 20 grains—*Pills of Aloes and Myrrh* (*Pilulæ Aloës et Myrrhæ*, U. S.), sometimes called *Rufus's Pills*, given in the same dose—*Compound Pills of Rhubarb* (*Pilulæ Rhei Compositæ*, U. S.), in the same dose—*Powder of Aloes and Canella* (*Pulvis Aloës et Canellæ*, U. S.), commonly called *hiera picra*, in the same dose—*Tincture of Aloes* (*Tinctura Aloës*, U. S.), given in the dose of $f\frac{3}{4}$ ss. to $f\frac{3}{4}$ iss.—*Tincture of Aloes and Myrrh* (*Tinctura Aloës et Myrrhæ*, U. S.), formerly called *elixir proprietatis*, given in the dose of $f\frac{3}{4}$ j. or $f\frac{3}{4}$ ij. as a stomachic and laxative—and *Wine of Aloes* (*Vinum Aloës*, U. S.), laxative in the dose of $f\frac{3}{4}$ j. or $f\frac{3}{4}$ ij.—cathartic in that of $f\frac{3}{4}$ ss. to $f\frac{3}{4}$ j.

JALAP.—JALAPA. U. S.

Root of *Ipomœa Jalapa*. Place of growth. General character of the plant. Nature of the root.

States in which it is imported—shape and size of the dried tubers—compactness—nature and colour of the surface—character of the fracture—colour internally—concentric arrangement of the colours—colour of the powder—odour—taste—relations to water and alcohol—chemical composition—adulterations—influence of worms upon its activity—relative power of its resinous and mucilaginous portions.

Character as a cathartic. Therapeutical applications. Ordinary combinations. Dose, 15 to 30 grains. Effects of an overdose. Dose of jalap and bitartrate of potassa, from 10 to 20 grains of the former with from $\frac{3}{4}$ j. to $\frac{3}{4}$ ij. of the latter. Dose of calomel and jalap, 10 grains of each—or 5 grains of the former to 15 of the latter. Dose of the resin of jalap, 8 or 10 grains. Disadvantages of this preparation.

Extract of Jalap.—*Extractum Jalapæ*, U. S. Mode of preparation—sensible properties—dose, 10 to 20 grains. The tincture, *Tinctura Jalapæ*, U. S., is little used.

MAY-APPLE.—PODOPHYLLUM. U. S.

Root of *Podophyllum peltatum*—an indigenous plant. General character of the plant. Nature of the fruit. Asserted poisonous nature of the young shoots.

Shape and size of the dried root—colour—colour of the fibres—taste—odour—colour of the powder—relations to water and alcohol.

Character as a cathartic. Remedial applications. Dose and forms of administration the same as those of jalap.

SCAMMONY.—SCAMMONIUM. U. S.

Inspissated juice of the root of *Convolvulus Scammonia*. Character of the plant. Place of its growth. Mode of collecting and preparing the juice. Application of the terms, *Aleppo* and *Smyrna Scammony*. Sometimes factitious.

Genuine Scammony. States in which it is imported—weight—consistence—fracture—porosity—colour—effects of exposure on the colour—translucency of the edges—odour—taste—colour of the powder. Adulterations.

Factitious or Montpellier Scammony. Origin—shape—colour—consistence—fracture—odour and taste—relative value.

Relations of scammony to water and alcohol—chemical composition.

Character as a cathartic. Therapeutical applications. Seldom given alone. Usually in the compound extract of colocynth. Dose, 5 to 10 grains. There is an officinal confection, little used.

BLACK HELLEBORE.—HELLEBORUS. U. S.

Root of *Helleborus niger*. General character of this plant, and place of its growth.

known in the ... has ... to ...
the ... happens ...
There is ...
in hot ...
in hot ...

2^o Socotrine Aloe. is hardly known. A socotrine is the genuine article is produced in the island of Socotra in the straits of Baber. It is a species of plant. A product very similar is made in the kingdom of ...
it is taken to ...
it is much esteemed.

3^o Hepatic Aloid. The one original ...
in Yemen ...
The ...
it is much used in veterinary practice. It consists of a
peculiar ...
the ...
the ...
the ...

4^o Red Pop. they ...
for the ...
changes are ...
if they ...
directly ...
aloes are ...
if inflammation ...
or an ...
with ...
the period when the ...

Powder Aloes. ...
Pil. Aloes. ...
Pil. Aloes. ...
Pil. Aloes. ...
Pil. Aloes. ...

Sulphur.

[illegible]

[illegible][illegible]

Shape of the root—colour externally and internally—odour—taste—effects of time and exposure—colour of the powder—relations to water and alcohol—effects of long boiling.

Character as a cathartic. Effects of an overdose. Tendency to the uterine system. Therapeutical applications. Sometimes called *melampodium*. Dose of the powder, from 10 to 20 grains—of the decoction, made with 2 drachms to a pint of water, fʒj. every 4 hours till it operates—of the tincture (*Tinctura Hellebori, U.S.*), fʒj.—of the extract (*Extractum Hellebori, U.S.*), 12 or 15 grains.

COLOCYNTH.—COLOCYNTHIS. U.S.

Fruit of *Cucumis Colocynthis*. General character of the plant. Place of its growth. Character of the fruit. Mode of preparing it for market.

Size and shape of the fruit as in the shops—colour—texture—consistence—constituents—relative amount of the seeds—odour—taste—relations to water and alcohol.

Active ingredient, a peculiar bitter principle called *colocynthin*.

Character as a cathartic. Effects of overdoses. Therapeutical applications. Dose, 5 to 10 grains. Almost always given in composition.

The compound extract (*Extractum Colocynthis Compositum, U.S.*) a valuable remedy. Constituents. Dose, 10 to 15 grains.

GAMBOGE.—GAMBOGIA. U.S.

Insipated juice of a tree not certainly known to botanists. Supposed origin. Place and mode of collection. Places whence imported.

Shape and size of the pieces—nature of the surface—colour externally—appearance of the fracture—colour of the powder—odour—taste—effects of heat—chemical composition—relations to water and alcohol.

Character as a cathartic. Disposition to produce vomiting. Therapeutical applications. Dose, 3 to 6 grains, given in pill or emulsion.

Compound Cathartic Pills.—*Pilulæ Catharticæ Compositæ, U.S.* Constituents. Principles of their formation. Applications. Dose, 3 pills.

ELATERIUM. U.S.

Product of *Momordica Elaterium* or *squirting cucumber*. General character of the plant. Place of its growth and culture. Character of the fruit. Modes of obtaining elaterium. The best of these. Clutterbuck's elaterium.

Shape of elaterium—colour—appearance of the surface—weight—texture—taste—odour.

Active ingredient, a peculiar principle called *elaterin*.

Character of elaterium as a cathartic. Danger from overdoses. Therapeutical application. Dose of the purest, an eighth of a grain—of the common, half a grain every half hour or hour till it operates. The best plan is to commence, as a general rule, with one-sixth or one-fourth of a grain. Dose of elaterin, from one-sixteenth to one-twelfth of a grain.

CROTON OIL.—OLEUM TIGLII. U.S.

Product of *Croton Tiglium*. General character of this plant. Place of its growth. Shape, structure, colour, and medical effects of the seeds. Formerly called *Grana Molucca* and *Grana Tiglia*. Mode of obtaining the oil from the seeds.

Consistence of the oil—colour—odour—taste—solubility in alcohol—chemical constitution—proportion of the active principle to the inert oil—adulterations—mode of detection.

Character as a cathartic. Effects of an overdose. Therapeutical applications. Dose, 1 or 2 drops. Administered in pill. Mode of preparing the pill.

Effects of its external application. Remedial uses in this way. Mode of application.

2. Mineral Cathartics.

SULPHUR. U.S.

Origin of crude sulphur or *brimstone*—mode of preparation—places from which it is imported—mode of preparation for medical uses. Called when prepared, *flowers of sulphur*, *sublimed sulphur*, *washed sulphur*.

Form—colour—odour—taste—insolubility in water and alcohol—solubility in volatile and fixed oils—chemical nature.

Peculiarities as a cathartic. Determination to the surface. Alterative action. Proofs of its absorption. Used in costiveness with piles, in dyspepsia, chronic rheumatism and

gout, chronic catarrh, cutaneous affections, &c. Dose as a laxative, ℥j. or ℥ij.—with a view to affect the system at large, somewhat less.

Used externally in psora, in the form of ointment. Mode of preparing the ointment. Sometimes applied in the form of vapour. Mode of application. Observations in relation to sulphur springs.

Precipitated Sulphur—*Sulphur Præcipitatum*, U. S. *Lac sulphuris*, or *milk of sulphur*. Mode of preparation. Chemical nature. Impurity and its source. Dose, the same as that of sulphur.

CARBONATE OF MAGNESIA.—MAGNESIÆ CARBONAS. U. S.

Sources and mode of preparation. Form, as found in the shops—weight—colour—feel—odour—taste—relations to water and to water impregnated with carbonic acid—chemical nature—adulterations.

Peculiarities as a cathartic. Antacid property. Liability to occasion flatulence. Sometimes preferable to the pure earth from its insipidity. Therapeutical applications. Full dose, ℥ij. Often given in smaller quantity.

MAGNESIA. U. S.

Sometimes called *calcined magnesia* or *magnesia usta*. Mode of preparation. Means of ascertaining the absence of carbonic acid.

Form—colour—taste—odour—relation to water—chemical nature. Peculiarities of Henry's magnesia.

Character as a cathartic. Antacid property. Possibility of accumulation in the bowels. Therapeutical applications. Dose for an adult, ℥j.—for a child two years old, from 10 to 20 grains. Often combined with rhubarb in bowel complaints. Best mode of preparing magnesia for administration.

Saline Cathartics.

Intermediate in power between laxatives and active purges. Act upon the intestinal exhalents and produce watery evacuations. At the same time operate as arterial sedatives. Occasion as little uneasiness in their action as any other cathartics. Adapted by these properties to inflammatory and active febrile complaints. Contra-indicated in typhoid complaints. Closely resemble each other in properties, so that one may frequently be safely substituted for another.

SULPHATE OF SODA.—SODÆ SULPHAS. U. S.

Commonly called *Glauber's salt*. Sources and modes of preparation. Chemical composition.

Shape of crystals—effects of exposure—proportion of water of crystallization—taste—solubility in water—effects of heat.

Less used than formerly. Dose of the crystallized salt, ℥j. to ℥ij.—of the effloresced, half the quantity. Mode of administration.

SULPHATE OF MAGNESIA.—MAGNESIÆ SULPHAS. U. S.

Commonly called *Epsom salt*. Sources and modes of preparation. Chemical composition.

Size and shape of the crystals as ordinarily found in the shops—proportion of water of crystallization—effect of exposure—solubility in water—taste.

The neutral salt usually preferred as a cathartic. Dose, ℥j. or more. Mode of administration. Advantage of solution in carbonic acid water.

SULPHATE OF POTASSA.—POTASSÆ SULPHAS. U. S.

Formerly called *vitriolated tartar*. Mode of preparation. Chemical composition.

Shape of the crystals—hardness—use on account of their hardness—solubility in water—effect of heat—taste.

Little used as a cathartic. Difficult solubility an objection. Dose, ℥ss. or ℥vj.

BITARTRATE OF POTASSA.—POTASSÆ BITARTRAS. U. S.

Frequently called *cream of tartar*, and *crystals of tartar* when crystallized. Chemically, *bitartrate of potassa*. Source of this salt, and mode of preparation. Imported in the state of crystals. Appearance of these crystals.

Form of the salt as kept in the shops—taste—solubility—effect of time and exposure on the solution.



where it is often found in a soft state. It is a white substance, which is
attained in the process of its formation. It is a white substance, which is
small dose does to cause flatulence. Dose grxxx to ʒij. as an antacid. It is
grxx to grxxx. When it is used in the stomach, it is a white substance, which is
can be used in the stomach. It is a white substance, which is
the next form.

Sodae Sulphas.

A small quantity is extensively used in the treatment of the stomach. It is a white substance, which is
water combined with sulphuric acid. It is a white substance, which is
vine & is prepared from ammonia & sulphuric acid. It is a white substance, which is
of ʒij. in sulphuric acid. It is a white substance, which is
in sixes. It is a white substance, which is
and it is an opac. It is a white substance, which is
of ʒij. in sulphuric acid. It is a white substance, which is
more than ʒij. in sulphuric acid. It is a white substance, which is
is an opac. It is a white substance, which is
of ʒij. in sulphuric acid. It is a white substance, which is
cream of tartar or a few drops of sulphuric acid.

Magnesiæ Sulphas.

Form of the compound is a white substance, which is
greatly used in the treatment of the stomach. It is a white substance, which is
salt. It is a white substance, which is
more from the stomach. It is a white substance, which is
is a white substance, which is
summit & is composed of ʒij. in sulphuric acid. It is a white substance, which is
60 grains weight. It is a white substance, which is
51.2 grains weight. It is a white substance, which is
is more acceptable to the stomach. It is a white substance, which is
cool & water. It is a white substance, which is
same as of the stomach. It is a white substance, which is
low in sulphuric acid. It is a white substance, which is
solvent of the salt to ʒij. in sulphuric acid. It is a white substance, which is

Soda Phosphas.

For a better taste & prompt action 1/2 lb. of Soda Phos. is the best with the sulphuric
 in an ather vessel with a little water & stir together. Digest 24 hrs. add occasionally a little water to replace
 the loss by evaporation. Strain the mixture at the expiration of time pour in gallon of cold water
 strain through a fine muslin add 1/2 lb. of water till the liquid passes nearly lactescent, let the dregs subsi-
 de & pour off the clear & add 1/2 lb. of water to the solid & heat in an iron vessel till it
 can be previously dissolved in hot water till the residues & the phosphoric acid is completely re-
 solved. Filter & let it crystallize & remove the crystals add if necessary a little water to the liquor, so
 as to render it slightly alkaline, then let it crystallize & let the crystals & the liquor be dried that
 they are closely stoppered bottles. It consists of 1 grain phosphoric acid of soda & 25 grains. Prop^s is in large
 colourless crystals & is at first quickly effervescent & becomes a pure saline
 taste like common salt. In 4 parts of water is dissolved in 1 lb. Med Prop^s is a purgative
 from its pure saline taste it is adapted to children & persons of delicate constitution in general
 & weak stomach. Here before its expensiveness compared to other saline purgatives has prevented its
 coming into use.

Calomel.

See Hydrargyri Chloridum. Mita page 66.

Pilula Catharticae Compositae see Zumbogia page 43.

See's antibilious pills, an empirical preparation contain^g aloe, scammony, gamboge, calomel, & soap & are prof^{ly} used in the East.

Peculiarities as a cathartic. Hydragogue properties. Direction to the kidneys. Degree of its sedative or refrigerant power. Therapeutical applications. Particularly useful in dropsy. Dose, ʒss. to ʒj. Mode of administration. Given in solution as a laxative refrigerant drink, sweetened with sugar. Often combined with jalap.

TARTRATE OF POTASSA.—POTASSÆ TARTRAS. U.S.

Formerly called *soluble tartar*. Mode of preparation. Chemical composition. No water of crystallization.

Form—colour—effects of exposure—solubility—effects of heat—effects of acids and acidulous salts.

Little used at present. Dose, from ʒss. to ʒj.

TARTRATE OF POTASSA AND SODA.—SODÆ ET POTASSÆ TARTRAS. U.S.

Commonly called *Rochelle salt*. Mode of preparation. Chemical composition.

Shape and size of the crystals—effects of exposure—proportion of water of crystallization—taste—effects of heat—solubility.

An excellent cathartic. One of the least unpleasant to the taste of the neutral salts. Dose, ʒj. or ʒiss. Composition of the *Seidlitz powders*, and mode of administration.

PHOSPHATE OF SODA.—SODÆ PHOSPHAS. U.S.

Mode of preparing this salt. Chemical composition.

Form as kept in the shops—proportion of water of crystallization—effects of exposure—taste—solubility in water.

Sometimes useful on account of its not unpleasant taste. Dose, from ʒj. to ʒij.

CALOMEL.

Official name *Mild Chloride of Mercury—Hydrargyri Chloridum Mite*. Its mode of preparation, and its chemical nature and relations are treated of in another part of the course.

In the dose of from 5 to 20 grains, it usually operates briskly, producing bilious stools, of a dark colour. Sometimes it operates without pain or nausea, sometimes it is very painful and apt to induce vomiting. In the latter case, the discharges from the stomach are bilious. Probability that the irritation is not owing to the direct action of the calomel on the alimentary mucous membrane, but to the increased quantity and disordered quality of the bile which it produces. Reasons for this opinion. Amount of purgative effect not always proportionate to the dose. Sometimes it operates in the quantity of 1 or 2 grains, sometimes very large doses produce little effect. Causes of these peculiarities in its operation. Risk of overdoses. Comparative insusceptibility of infants or young children to its purgative effect. Slowness of its operation. Propriety of following it, if it do not operate in 6 or 8 hours, by another cathartic. Often combined with jalap, rhubarb, scammony, or other active cathartic, to render it more speedy in its operation. Dose of calomel and jalap, 10 grains of each. Generally, 3 or 4 grains of calomel, combined with other cathartics, is a sufficient quantity to insure the peculiar advantages of the mercurial. An ingredient in the *Compound Cathartic Pills* of the United States Pharmacopœia, and in *Lee's Antibilious Pills*.

Therapeutical applications. In the commencement of autumnal fevers, and sometimes in their course when attended with congestion of the liver. In other diseases accompanied with deficient hepatic secretion or congestion of the portal system, as constipation, jaundice, hepatitis, &c. One of the best cathartics in cases of inflamed stomach and bowels. Particularly adapted to the treatment of the diseases of children. Unfounded apprehensions of danger on the part of some practitioners. The only serious danger to be apprehended from it, when properly given, is excessive action upon the mouth. Given in powder or pill. Dose for adults, from 5 to 20 grains—for children two years old, about 4 grains.

ENEMATA.

Uses of purgative enemata—to hasten, facilitate, or increase the action of cathartic medicines—to operate upon the bowels in cases of irritability or inflammation of the stomach, or of debility when purgatives by the mouth might produce exhaustion, or of feculent accumulation in the lower bowels, or habitual constipation dependent on a want of due irritability of the rectum.

The common laxative injection is composed of *common salt*, *molasses*, and *lard* or *olive oil*, each a tablespoonful, and a pint of warm water.

If a more powerful enema is required, ʒij. of *castor oil* may be added to the above ingredients—or a pint of *senna tea* of the official strength may be resorted to, or any other active cathartic in three times its ordinary dose.

The *oil of turpentine* is an excellent material for a purgative injection, especially in typhous cases, and in tympanitic states of the abdomen. From f℥ss. to f℥ij. of the oil may be given, suspended by means of the yolk of an egg in Oss. of warm water.

Assaſctida in the quantity of ℥j. rubbed up with warm water may be used under similar circumstances.

Large quantities of warm water will sometimes operate favourably by the mere stimulus of distention.

Very cold water sometimes proves purgative when administered by the rectum, by relaxing spasm.

When but a very slight impression is required, as in habitual constipation, some mucilaginous fluid, as barley water or flaxseed tea, may be employed in the quantity of a pint.

theri... of the lungs if there is much inflammation of the lungs as in pneumonia & severe catarrh the
use of squill should be preceded by the lancet. In one case it causes dyspnoea rather than a cure
... it is used in the treatment of the morbid structure of stomach & bowels. It is much used in
dyspeptic complaints. It is for this purpose often combined with calomel which is supposed to excite
the absorbent while the squill excites the secretory function of the kidneys. From its great use in
occasional cases it is rarely prescribed now except in infantile convulsions & in
which it is given in form of syrup or pills. In a dose of ʒi in full grown & expect-
doses ʒi 2 or 3 times a day. & increased till nausea or till it effects the lungs & kidneys. From ʒi to ʒi xii
... it. Syrupus Scillae. Vine of squill ʒi. refined sugar ʒi. add the sugar to the vine &
boiled by the fire of the sun in a glass which may ferment & again the solution while hot. much less
as in expectorant especially in combination with a solution of tartaric acid & antimony dose ʒi. In cases of
infantile catarrh & other pulmonary affect it is given in the same dose, as in notes See Page 54.

Colchici Radix et Colchici Semen.

A perennial bulbous plant, the leaves of which appear in spring & the flowers in autumn. In the latter part
of summer a new bulb or cormus begins to form at the lateral inferior part of the old one which receives
the young offshoot in its lower semicircular half. The new plant sends out fibres from its base
& is furnished with a radical spathe. In Sept. from 2 to 6 flowers spring from the spathe in compa-
ny with leaves. The flowers perish by the end of Oct. & the rudiments of the fruit remain in the ground
till the following spring when they rise in the form of a 3 lobed capsule. The leaves of the new
plant then follow. The bulbous root is each year a new bulb has two offshoots. It is native of Tempe
in Asia Minor where it grows wild in moist meadows. It should be collected from early June which
is its season of perfection. It is best when the offshoot appears. In early spring it is too young to
have it perfectly developed & late in the fall it has become insipid by the nourishment it
has received.

Digitalis.

exerts a directly stimulative influence over the secretory function of the kidneys. This influence is said to extend to the genital organs. It is at present very extensively employed for its diuretic power in Dropsy. It is used externally for Dropsy as follows. The fresh leaves bruised or the tincture may be rubbed over the abdomen & on the inside of the thighs. Dose of powder grs. 2 or 3 times a day till it produces its remedial effect when it should be suspended or reduced. It is so powerful a medicine that great caution should be used in its administration. For further details see Digitalis page 34.

Scilla.

The bulb is set in part in the fresh state packed in sand. It is pear shaped larger than the fist, sometimes as the head of a child, & consists of fleshy scales, attenuated at their edges, closely applied over each other, & invest by a thin or scales so thin & dry as to appear to constitute a membranous coat. There are 2 varieties. The 1st the exterior coat is of a deep reddish brown color, & the inner scales have a whitish or very light pink spotted with a yellowish white pumice, in the white variety the whole is white. They are alike in medicinal virtues. The bulb abounds in a viscid, acrid juice which is said to inflame & ulcerate the hand if much handled by dryness. This is a common mistake. A little bit of redistilled the bulb is cut in thin transverse slices & dried, the inner part of the heart, the outer scales being dry & the rest of the heart is rejected the inner ones are also rejected from their being too fleshy & mucilaginous. The bulb loses $\frac{4}{5}$ of its weight by this process. Parts of it is found in the shops dried in several places & contraband, all of which are hit with a red-hot iron, & are entirely white, slightly diaphanous, brittle & pulverulent when perfectly dry, but often flexible from moisture for which they have great affinity. Some pieces are found vertically sliced, dried together at their base. Some are flexible, taste bitter, acrid & nauseous. In water, alcohol & vinegar extract their virtues.

Mell. Propolis Expectorant & diuretic & in large doses emetic & purgative. It is an expectorant. It is used both in deficient & superabundant secretion from the bronchial mucous membrane in the former case usually combined with the mucous for peace in the latter with the stimulant effect in both cases it acts by stimulating.

CLASS X.

DIURETICS.

General Observations.

Medicines which increase the secretion of urine. They operate in one or more of three ways—either 1. by entering the circulation and stimulating the kidneys by direct contact, or 2. by the propagation of a sympathetic impression from the alimentary canal to the kidneys, or 3. by promoting absorption, and thus secondarily stimulating the kidneys by filling the blood-vessels. In the great majority of instances, they probably act directly on the kidneys.

Various circumstances influencing the action of the kidneys, necessary to be considered in the use of diuretics. Opposition between the urinary and perspiratory functions. Influence of cold in diminishing the latter and increasing the former. A similar opposition, to a certain extent, exists between the kidneys and the bowels. Cause of this opposition in both instances. Practical inferences. Influence of cold drinks in promoting diuresis. Rule as to the quantity of drink that may be allowed in the treatment of dropsy. Arterial stimulation within certain bounds promotes diuresis, beyond these bounds checks it. Practical inference as to the use of bleeding and other depletory measures, in cases of high excitement, in order to favour the action of diuretics. Influence of mental emotions over the function of the kidneys.

Diuretics are employed chiefly in the treatment of dropsical complaints. They operate partly by diminishing the quantity of circulating fluids, and thereby promoting absorption—partly as evacuants, reducing arterial excitement, and diminishing the irritation upon which the effusion depends—and partly, perhaps, on the principle of revulsion.

Employed also in inflammations and irritations of the urinary organs, after due depletion. They probably act in part by increasing the quantity of urine and rendering it less irritating, in part by depletion from the excited vessels.

In chronic nephritic affections, certain diuretics prove useful by coming into contact with the diseased surface, and changing the nature of the morbid action.

Many of the diuretics are useful in febrile and inflammatory complaints as depletory remedies.

Very uncertain in their action. It is sometimes necessary to employ several successively before the effect is produced. Good often results from combining them.

FOXGLOVE.—DIGITALIS.

Before spoken of as a sedative. As a diuretic, one of the most efficient. Peculiarities of its action. Reason for supposing that it acts on the absorbents. Remedial applications as a diuretic. Dose and forms of preparation before stated.

SQUILL.—SCILLA. *U. S.*

Bulb of *Scilla maritima*, an herbaceous plant, indigenous in the countries bordering on the Mediterranean.

Shape, size, and structure of the bulb. Varieties, *red* and *white*. Difference between them. Mode of slicing and drying for market. The parts rejected. Loss of weight in drying. Shape of dried squill as in the shops—texture—effects of the damp air—colour—odour—taste—relations to water and alcohol.

Active ingredient, a peculiar acrid principle called *scillitin*.

Effects of squill in large doses. Action as a diuretic. Direction to the pulmonary organs. Effects of overdoses. Local effects. Cases to which it is applicable. Dose, from 1 to 3 grains, two or three times a day, gradually increased till nausea is produced. Object in producing nausea. Often combined with calomel—2 grains of squill and half a grain or a grain of calomel being given three times a day till the mouth is affected. Advantages of this combination.

COLCHICUM ROOT.—COLCHICI RADIX. *U. S.*COLCHICUM SEED.—COLCHICI SEMEN. *U. S.*

Root or more strictly cormus, and seeds of *Colchicum autumnale* or *meadow-saffron*. Character of this plant, and place of its growth and cultivation. Period at which the cormus or root is perfect. Cause of its inefficiency before and after this period.

Root. Shape—size—structure—consistence—mode of preparing for the market—shape of the slices—colour—odour—taste—relations to wine and vinegar as solvents—influence of time.

Active properties supposed to reside in an alkaline principle, at first considered as identical with *veratria*, but at present as peculiar, and denominated *colchicin* or *colchicia*.

Seeds. Time of collection—size—colour—virtues in the outer coating.

Effects on the system. Effects of overdoses. Therapeutical applications. Dose of the root or seeds in substance, from 2 to 8 grains, but scarcely ever given in that state. Usually administered in the form of wine. Two official vinous preparations: viz.

Wine of Colchicum Root—Vinum Colchici Radicis, U. S. Proportion of the root to the wine. Reasons for the large proportion of the root. Dose, 10 drops to fʒi.—in acute cases, from 10 to 20 drops every three or four hours, and gradually increased till it produces some effect. Signs of its action. In chronic cases, from 10 to 20 drops three times daily, and gradually increased. Often combined with magnesia—often with morphia.

Wine of Colchicum Seed—Vinum Colchici Seminis, U. S. Proportion of the ingredients. Dose, from fʒss. to fʒij.

WHITE HELLEBORE.—VERATRUM ALBUM. U. S.

AMERICAN HELLEBORE.—VERATRUM VIRIDE. U. S.

Roots of *Veratrum album* and *Veratrum viride*, perennial herbaceous plants, the former a native of Europe, the latter of the United States.

Shape and sensible properties of the root. Active principle, *veratria*.

Effects on the system. Therapeutical applications.

Veratria. Obtained from cedavilla, which consists of the seeds of a Mexican plant. Sensible properties. Relations to water and alcohol. Effects on the system. Therapeutical applications. Chiefly used externally. Mode in which employed.

INDIAN HEMP.—APOCYNUM CANNABINUM. U. S.

Root of *Apocynum Cannabinum*—an indigenous, herbaceous perennial plant.

Sensible properties of the root—relations to water and alcohol—effects on the system—remedial application. Used in decoction, made by boiling three half pints of water with half an ounce of the root to a pint. Dose, fʒj. or fʒij., 2 or 3 times a day.

DANDELION.—TARAXACUM. U. S.

Root of *Leontodon Taraxacum*—an herbaceous perennial plant, growing in almost all parts of the world. All parts of the plant contain a milky juice and are possessed of medicinal virtues, but the root is most efficient.

Shape of the root—colour—odour—taste—relations to water. Best in the recent state. Effects of time.

Effects on the system. Therapeutical applications. Used in decoction and extract. Dose of the decoction made by boiling an ounce of the dried or two ounces of the fresh root in a pint of water to half a pint, fʒij., two or three times a day—of the extract, 20 or 30 grains. The extract is official. Proper time for preparing it.

JUNIPER BERRIES.—JUNIPERUS. U. S.

Fruit of *Juniperus communis*—an evergreen shrub, indigenous in Europe and naturalized in this country.

Shape and size of the berries—colour—odour—taste—relations to water and alcohol.

Active ingredient, a volatile oil, called officinally *Oleum Juniperi*. Colour of the oil—mode of preparation.

Character of Juniper berries as a diuretic. Therapeutical applications. Generally used as an adjuvant to other medicines. Of the infusion made with one ounce of the bruised berries to a pint of water, a pint may be taken during the day. Often associated with cream of tartar. Dose of the oil, from 5 to 15 drops.

FLEABANE.

Erigeron Philadelphicum, and *E. heterophyllum*, herbaceous indigenous plants, growing in the fields. Identical in properties. The whole herb is employed.

Sensible properties of the herb—relations to water and alcohol—medical effects—therapeutical application. Given in the form of decoction, made with an ounce to a pint of water, the whole to be taken daily.

WILD CARROT.—CAROTA. U. S.

Seeds of *Daucus Carota*, an indigenous perennial herb. General character of the plant. Shape and size of the seeds—colour—odour—taste.

[illegible]

Veratrum album can be procured here in fresh fruit or root, y^l^h white outer - pale y^l^h green within
base with long cylindric gray^h fibres which attach to the true root. stem 4 ft. high, erect, leaves
alternate, oval, plant 1 1/2 to 2 1/2 ft. 10 inches long broad y^l^h green, flower greenish in terminal panicle. al. white
Hyps + yuccines. the whole plant is poisonous. The dried root is brought from Germany in pieces 2 or 3 inch^s long 1 inch or less
in diam. cylindric or subtr. root with stem^s black^h stem^s 1/2 in. diam. rough with the remains of
the fibres or root still attach^d; these are sometimes y^l^h & some of core's will perforate by deep gray^h spots
The fresh root has a disagreeable odor which is not in y^l^h taste^s sweet^h then bitter^h acrid^h when chewed

4. *Procyon Canabinum.*

Stem erect, 2 or 3 ft high, leaves downy beneath, flower small & green with purple or pink^{ish} within the petals, buds in a milky juice basal, a soft fibrous bark which by macer^{ation} affords a substitute for soap. root 1 or 2 ft long, 3 inch thick has 2 or 3 lateral branches, yellowish, and becomes red when dried. stem & root, taste ^{acrid &} nauseous, bitter, permanent. the lignous or yellow white part is less bitter than the cortical. The fresh root when worm-eaten affords a juice which has a taste closely related with codonopsis. In a dried state it is bitter & gives a powd of a light gray-fawn col. yield its virtues to water & to alcohol. Med Prop^s powerfully emetic & cathartic; somewhat direct-like most roots promotes diaphoresis & expect^{oration}. It nauseates, diminishes the pulse & induces drowsiness, is not applicable in any disease except acute yellow fever, the cathartic act. of the decoct. The watery extract is given in doses of 2 or 4 gr. 3 times a day. The decoct. is the best.

Taraxacum.

[illegible]

Juniperus.

[illegible]

their virtue. Oleum Juniperi, is most in part? It is cold & dry or light, newly yel^d. It is a true intimate
down & a hot acrid taste, not very solid & a little. It is not adulterated in the oil of the perfume the sp. of the
musk is less than the pure article which is 0.911. It is a stim^l, carminative & diuretic used in debilitat-
tropical cases & in connexion with digitalis. It is the oil which gives to Holland gin its flav^r & diuretic pr.
Prep. put the berries in a retort, or other vessel suitable for distillat. add enough water to cover them & distill
into a large refrigerator, separate the oil & wash it in the water. The residue is with in Red Prop^{ty} the
berries are gently shinn^d & dried. Giving to them a smell of i^llets, causing when largely taken irrita-
tion of the urin^y passages. are pl^y used as adjuncts to more powerful diuretic^s in tropical complaints & have
been recommended in scurvy & cutaneous diseases, catarrh of the bladder & a morbid condⁿ of the alimentary
canal & others. given in sublet^e of nitrate with sugar dose ʒj to ʒij. 3 or 4 times a day. This is the best form
Erigeron.

They should be collected in the flower season from June to Oct. They have an aromatic downy & bitter^l taste
and are extractive in virtue. It is diuretic with being offensive to the skin. It has been given with benefit
in gravel & other nephritic diseases as also in dropsy, & in hydrothorax complicat^d with gonorr^{ea}. owing to
the obstinacy & long duration of dropsy it is of advantage to have many different diuretics which may mitigate the
sympt^s with & exhaust the patient. It is also resorted to the one when the syst^m has become accustomed to the receipt
of another. It cannot however be relied on for the cure of dropsy.

Carota.

Has a birch spindle shaped root & an annual round hairy stem which divides into long erect, flower bearing
branches rises 2 or 3 ft. high. leaves hairy the lower are larger, the leaflets are divid^d into narrow pointed segments. flowers
small, white in umbels at the flat & spread^d but when the seeds are formed contract & present a concave cup like
surf. a sterile flower of a deep purple color is met^d in the centre of the umbel. fruit consists of 2 planes or valves
connect^d by their flat s^e f. 1/2. in the U. S. grows along the fences of neglected fields. flower^s in June & July
The garden carrot is the same plant altered by cultivation. The seeds are brown, very light, oval shaped, have
4 long ridges on their convex side to which a stiff whit^e hairs or bristles are attach^d. they have an aromatic
downy taste warm pung^t & bitter^l and extract their virtue by distillⁿ. they give a pale yellow
oil which has their virtues depur^d. The root is whit^e, hard, coriaceous branch^s & stem green, acrid disagreeable
taste.

Red Drop: The seeds are moderately sweet. Some are much used in chronic phthitic affect. Drops possess slightly the cordial prop^y of the ^{seeds} ^{at} there are good in febrile states & a sudorific relief in strangury & in blisters. Dose of seeds gr^{ss}xx to 3ss. The whole umbel is often used instead of the seed alone. The Drops may be used for the same purposes as the seeds. The garden root & the scrapings being applied to phagedenic, slough^d & cancer^d ulcers corrects the fever & sometimes changes the character of the disease. In this state it is small. Boil^d & mash^d is perfectly mild & only fit for molluit cataplasms.

Petroselinum.

Nature of the ^{root} ^{is} ^{not} ^{very} ^{strong} though cultivated in gardens everywhere. The seeds are quite as efficient as the root, which is also offic^{inal}. It owes its virtues to an essential oil. It is a perient^{al} & diuretic & is used singly in nephritic & dropsical affect^s in connexion with more active medicines. It is administered in strong infusion. The juice of the fresh herb has been used as a substitute for quinia in interm^{itt}.

Terebinthina.

American or White Turpentine. Prep. During the warmer months, a cavity of the capacity of 3 pints are made in the trunk of the tree 3 or 4 inch^s from the ground. The juice begins to flow in these about the middle of the month, & rapidly in summer & slowly in the autumnal months, it is removed, & kints each where there is a soft & moist existence. As found in shops it is yell^{ish} white, a peculiar somewhat sweet^{ish} or warm, pung^{ent} bitter taste, somewhat viscid & resin^{ous} fluid in summer & very adhesive, the soft^{er} & more ^{is} often so fine & hard as to require the aid of heat to be made into pills. Exposed to air it becomes dry & hard.

Canadian Turpentine. It is contained in small vesicles which form naturally upon the trunk & branches of the tree & is procured by break^{ing} these & receiv^{ing} the contents in a bottle when fresh it is colorless or slightly yell^{ish}. The exp^{er} consists of thin honey, tenacious, strong agreeable odor. Taste bitter - somewhat oily. Time & exposure becomes yell^{ish} & solid. The leaves is an improper mode of designat^{ing} this product as that is now reserved as it contains no empyric acid is in fact a true terpenine.

General Prop^y. Turpentine resembles each other in odor & taste with change of place. They are thick & form white exposure partly from volatile & partly from essential oil. They are made more liquid or solid by heat. Take fire at a high temperature & burn with a white flame & much smoke. Water extract a small part. In this relation they are sol^{uble} in alcohol & the minute with fixed oils. They are composed of a volatile oil called oil of turpentine & of resin. Red Drop: It is mild & sweet, antelmintic & a large doses laxative. Taken internally or externally applied the give a violent odor to the urine & by long use so irritate the mucous membrane of the urinary passages as to cause smarting & strangury. This is less apt to occur when they operate on the bowels, used & externally the act is rubefac^t. Their use has been replaced much by their volatile oil. They are however sometimes given in gleet, leucor^{rh} & other chronic diseases of the urinary passages in pills & emulsion. From the ulceration of the bowels, indicated by pain in a kind of association & immix^{ture}. The volatile turpentine is not used in the U. S. given in pill with powerfully emollient insulins with gum arabic or yolk of egg, loaf

Active ingredient, a peculiar volatile oil. This impregnates more or less the whole plant, and the tops and root may be used in the same manner as the seeds.

Character as a diuretic. Effects on the stomach. Therapeutical applications. Used chiefly as an adjuvant to other diuretics. One pint of the infusion, containing the virtues of half an ounce of the seeds, may be used daily.

External application of the root of the garden carrot. Difference between the boiled and unboiled root.

PARSLEY ROOT.—PETROSELINUM. U. S.

Root of *Apium Petroselinum*, or common garden parsley. Medical use. Administered in strong infusion. Dose indefinite.

TURPENTINE.—TEREBINTHINA.

The juice of different species of the genera *Pinus*, *Abies*, and *Larix*, consisting essentially of resin and a peculiar volatile oil, called *oil of turpentine*.

Many varieties are known in commerce. In the United States, only two are much employed—the common *white turpentine* and the *Canada turpentine*.

1. *White Turpentine—Terebinthina, U. S.* Derived chiefly from the *Pinus palustris*, growing in the southern states. Mode of collection. State in which it is brought into the market. Properties as found in the shops—consistence—colour—odour—taste—effects of exposure.

3. *Canada Turpentine—Terebinthina Canadensis, U. S.—Canada balsam. Balsam of fir.* Product of *Abies balsamifera* (*Pinus balsamea*, Linn.), growing in the northern states and Canada—cultivated as an ornamental plant under the name of *balm of Gilead*. Position in which the turpentine is found in the tree. Mode of collection. Properties—consistence—colour—transparency—odour—taste—effects of exposure.

General properties of the turpentines—effects of heat—inflammability—relations to water and alcohol—chemical composition. Their virtues reside in the volatile oil.

Effects on the system. Therapeutical applications. Dose, from 10 grains to ʒj., given in pill or emulsion. External use.

Several substances analogous to turpentine, and derived from the same trees, merit notice.

TAR.—PIX LIQUIDA. U. S. Obtained usually in this country from *Pinus palustris*. Sometimes also from other species. District of country in which it is prepared. Mode of preparation. Properties—consistence—colour—odour—taste. Chemical constituents. *Creasote* one of those upon which its virtues depend. Relation to water as a solvent. Official infusion called *tar water*, or *Aqua Picis Liquida*. Therapeutical uses. Administered in substance, or in the form of tar water. Dose of the former, from ʒss. to ʒj.—of the latter, a pint or two in the day. Remedial use of the vapour. Mode of applying it. Use of *tar ointment* (*Unguentum Picis Liquida*, U. S.). The residue after the evaporation of the volatile parts of tar is called *pitch*.

CREASOTE.—CREASOTUM. U. S. Mode of obtaining it. Properties—consistence—colour—volatility—specific gravity—odour—taste—solubility in water and alcohol—influence over the putrefactive process—effect on albumen. Therapeutical applications, internal and external. Dose, one or two drops. Applied externally in aqueous solution or ointment.

RESIN.—RESINA. U. S. Commonly called *rosin*. Residue after the distillation of the oil from turpentine. *Yellow* and *white resin*. Difference between them. Properties—consistence—relations to water and alcohol—effect of heat in rendering it adhesive—fusibility—facility of combination with oils and fats—pharmaceutical uses. Basis of the *resin cerate* (*Ceratum Resina*, U. S.), commonly called *basilicon ointment*. Uses of this cerate.

OIL OF TURPENTINE.—OLEUM TEREBINTHINÆ. U. S. Its properties and applications as an arterial stimulant before treated of. Determination to the urinary organs—effect on the urine and on the urinary passages—diuretic action—therapeutical uses in reference to these properties. Dose, 10 to 20 drops, two, three, or four times, or more frequently, during the day.

COPAIBA. U. S.

Commonly called *balsam of copaiba*. Derived from different species of *Copaifera*, growing in Brazil and Guyana. Mode of procuring it from the tree. Its consistence and colour as first obtained.

Consistence of copaiba as kept in the shops—colour—transparency—odour—taste—relations to water and alcohol.

Constituents, principally a volatile oil and resin—the former of which is probably the active principle. Mode of obtaining the oil. Its specific gravity—colour—odour—taste—composition—application to the preservation of the alkaline metals.

Effects of exposure on copaiba. Results of its mixture with magnesia. Official pills of copaiba and magnesia. Proportion of the ingredients.

Effects on the system. Remedial applications. Dose, from 10 to 30 drops, three times a day. Modes of administration. Dose of the volatile oil, 5 to 15 drops.

SPANISH FLIES.—CANTHARIS. *U. S.*

Commonly called by the plural term *cantharides*. *Cantharis vesicatoria*. Its natural and commercial history, sensible and chemical properties, are spoken of under the head of epispastics.

Effects on the system. Tendency to the pelvic viscera, particularly to the urinary passages. Danger of overdoses. Therapeutical applications. Dose of the powder, 1 grain two or three times daily—of the tincture (*Tinctura Cantharidis, U. S.*) 20 drops to fʒj, repeated as frequently.

CARBONATES OF POTASSA.

The *carbonate* and *bicarbonate* are employed—*Potassæ Carbonas, U. S.*, and *Potassæ Bicarbonas, U. S.*

Source from which the carbonate is usually procured. Mode of preparation. Impurities. Results of exposing its solution to the air, or to the action of an acid. Mode of preparing the purer salt, properly called *salt of tartar*.

Form of the carbonate of the shops—effects of exposure—taste—alkaline reaction—solubility in water—insolubility in alcohol.

Cases to which it is particularly applicable. Dose, 10 to 30 grains, three or four times a day.

The *bicarbonate*. Mode of preparation. Form—composition—solubility. Effects of boiling water and of a red heat. Advantages over the carbonate. Dose, from ʒss. to ʒj.

ACETATE OF POTASSA.—POTASSÆ ACETAS. *U. S.*

Formerly called *sal diureticus*. Mode of preparation. Form and appearance—effect of exposure—taste—solubility. Dose, from ʒj. to ʒj. as a diuretic, every two or three hours. In larger doses, cathartic.

BITARTRATE OF POTASSA.

Origin, commercial and chemical history, and properties as a cathartic, before described. One of the best saline diuretics. Mode of administration calculated to secure its diuretic operation. Cases of dropsy to which it is peculiarly adapted. From ʒj. to ʒij. given daily in divided doses. Effects on the stomach when long continued.

NITRATE OF POTASSA.

Origin, commercial and chemical history, and properties as an arterial sedative, before spoken of. Sometimes powerfully diuretic. Cases to which it is especially applicable. Dose, from 10 to 20 grains, repeated so as to amount to ʒj. or ʒij. or more in the twenty-four hours. Effects on the stomach when too long continued.

SPIRIT OF NITRIC ETHER.—SPIRITUS ÆTHERIS NITRICI. *U. S.*

Commonly called *sweet spirit of nitre*. Mode of preparation. Composition.

Form—colour—odour—taste—volatility—inflammability—solubility in water and alcohol—specific gravity—changes produced by time.

Often diluted with alcohol. Injurious consequences.

Character as a diuretic. Therapeutical application in reference to this property. Dose, from fʒss. to fʒj, frequently repeated.

they may burn from the residue prepare the pure Carb^t in the most direct for the Carb^t Prep^s is
found in shops it is a mass of a c. s. a g. ^{white} ^{po} ^{the} ^{deliquescent} ^{by exposure} ^{it attracts}
moist^r & is completely dissol^d into an alkaline salt about the surface kept in a very light bottle has a r. s. as
alkaline taste & color a small bl. in wet colours, crystals in water & in alcohol. Med. Prep^s used as an antacid
in dyspepsia, a diuretic in dropsy, as a cathartic in general. The Carb^t is deposited from the urine.
Also in some cases of Lunacy, is sometimes used with cochineal in bo. enough & is support^d of it. favourably in
those. where there is exalt^d for a large lymph. format. of false. & is given in aromatic
wat. sweetened with sugar. for over dose it is a corrosive poison causing death in a few hours. the antidotes
are the acids, veg^t, & ac. It's most common use is the format. of the neutral mixture & efflorescing draught
The pure Carb^t of the pure Carb^t are the same & is a better material for the format. of the neutral mixture
Potassae Bicarbonas. Carb^t of potassa in Dist. Wat Ox. dissolve the Carb^t in the wat. & pure Carb^t ac. treat
the dist. H₂O. with a little water. & filter. imp^t with a heat not ^{exceed} 100°. that imp^t of form. pour off
the supernat^d liquor & dry the rest upon bibulous paper. Carb^t ac. is sol^d in by add^d white & fire to M. bl.
Prep^s It is in transp^r colourless. & crystals, alkaline to the taste & to test paper. It consists of 2 parts Carb^t ac.,
1 of potassa & 1 of wat. sol^d in 4 times its weight of water & $\frac{1}{2}$ its weight of oil. wat. by which it is converted into sesquicarb^t.
insol. in alcohol. at red heat it loses its wat. of crystals & $\frac{1}{2}$ its Carb^t ac. & returns to the state of pure Carb^t.
The Med. prep^s of the bicarbonate those of the Carb^t but it is rather more acceptable to the stom. See Page 58.

Potassae Uctas.

Prep. ac^t ac. Carb^t of potassa Q. s. Add the Carb^t to the ac^t ac. till it is saturat^d filter. wash to cal^d on
by means of a sand bath till a dry salt remains. keep this in closely stopp^d bottles. Prep^s When pure is a white
salt, neutral to test paper, & not known to the touch. has a warm pur^t saline taste. Obtain^d by the above process
it is in soft form & masses. as put^d in form it has a foliat^d form given by fusion & sol^d is very deliquescent & by exposure
to the air is resolu^d into an deliquescent liquor. sol^d in $\frac{1}{2}$ its weight of water & twice its weight alcohol. any diss^d
olues particle is an impurity. Med. Prep^s diuretic in doses of ℥j to ℥j. a mild cathart^c in dose of ʒ. 2 or ʒ. 5. in
in dropsies. The ready prep^s salt has a warm & sub^t taste is found in the liquid form made & is temporary & can only
by a heat & distill^d imp^t with the Carb^t of potassa of which ℥ij saturat^d with vinegar will somewhat produce in ʒ. 5
causes 100 or 12 stools & a copious discharge of urine (Zinnian). Like all other salts containing a volatile acid it may
begin in the Urine & distill^d to render the urine alkaline.

Potassae Nitras.

See Pages 144 & 15.

Potassae Nitrus

Promotes the action of urine & sweat & keeps the bowels in a sob^{le} cont^d. Given too freely or too long it excites pains in the stom. See
Pages 32 & 52.

Spiritus Aetheris Nitrici

[illegible]

General Observations.

Medicines which caustic create relaxation by sympathy the capillary vessels are also relaxed. It has been a diaphoretic when applied to the skin of a patient labouring under fever by stimulating the capillary vessels & by reducing the temperature of the skin to its normal state. It is a warm & at the same time a relaxant effect. It is all exerted on the skin by direct impression & has no power over the capillaries.

Specacuantha.

The union of Opium & Specac forms an admirable anodyne diaphoretic not surpassed by any other combination. In this respect Op^m has a strong tendency to the skin, & is excited by occasional diaphoresis & the skin & the lining which it excites. While the vessels of the skin are stimulated by the Op^m the secretory vessels are excited by the Specac & the combined effect is much greater than that of each separately. At the same time the stimulant property of the Op^m & its tendency to operate injuriously on the brain are counteracted so that the mixt. is safely given. Hence Op^m alone could not be used.

CLASS XI.

DIAPHORETICS.

General Observations.

Medicines which promote perspiration. The vessels of the skin, in a healthy state, are always secreting. The perspiration is generally insensible, because, as soon as secreted, it is converted into vapour. If, however, it be greatly increased in quantity, it retains the liquid form and constitutes sweat. The state of the atmosphere, in relation to the degree of its moisture, has much influence over the form which the perspiration assumes—a very dry state promoting its evaporation, and *vice versa*. The idea was at one time entertained that certain medicines promoted the insensible, others the sensible perspiration; and under this impression, the former were called *diaphoretics*, the latter *sudorifics*. But it is now generally admitted, that the two forms of vapour and liquid are merely different states of the same fluid, depending partly on its quantity, partly on the condition of the atmosphere. There is obviously, therefore, no ground for such a division; and the term diaphoretic is now considered as applicable equally to all the individuals of this class of medicines.

Diaphoretics operate in several different ways. 1. Some give rise to perspiration by relaxing the constricted cutaneous capillaries, while the circulation is in a state of excitement, as in febrile complaints. Illustrations of this mode of action. 2. Others probably act by entering the blood-vessels, and directly stimulating the vessels of the skin to increased secretion. 3. A third set may possibly stimulate the cutaneous vessels by means of the sympathy which connects the outer surface of the body and the stomach. 4. Some, with a tendency to the skin, conjoin a stimulant property by which they at the same time excite the circulation. These have little or no diaphoretic action in the febrile state; but are calculated for complaints in which a cool dry skin is connected with a languid circulation. 5. The diaphoretic action is induced by any thing which fills the blood-vessels, provided, by the application of warmth, a direction of action be given to the skin. Hence the free use of drinks promotes sweating. 6. Lastly, a mere increase in the flow of blood, if action be directed towards the skin by proper measures, and care be taken that the excitement do not proceed so far as to produce constriction of the extreme vessels, will cause an increase of the perspiration. Hence exercise, the heat of the weather, the vapour bath, and gentle internal stimulants, especially if accompanied with warmth and free dilution, prove actively diaphoretic.

These medicines do good in disease; 1. by removing constriction of the cutaneous capillaries, the existence of which, by increasing the heat of the skin, seems to aggravate fever; 2. by depleting from the blood-vessels; 3. by revulsion to the surface; 4. by promoting absorption; and 5. by eliminating noxious matter from the blood. Illustrations on each of these points.

If copious perspiration be required, the patient should be confined to bed, well covered, and clothed with flannel next the skin. Warm diluent drinks may also be given freely, where there is little or no febrile excitement. If the pulse be strong, and high inflammatory action exist, the operation of diaphoretics will be promoted by the previous use of the lancet or other depleting measures. During the continuance of diaphoresis, if this be the main object in view, care should be taken to avoid measures calculated to promote other secretions, particularly that from the kidneys, and bleeding also should be abstained from. Reason for this caution.

Diaphoretics may be conveniently considered under the three heads of 1. *nauseating diaphoretics*, 2. *refrigerant diaphoretics*, adapted to inflammatory complaints, consisting chiefly of saline substances, and 3. *alterative diaphoretics*.

1. *Nauseating Diaphoretics.*

Most emetics are diaphoretic in small doses. Ipecacuanha and tartar emetic are those chiefly used.

IPECACUANHA.

Seldom used alone as a diaphoretic. Usually given in combination with opium. Value of this combination. Explanation of its mode of action. Necessity for intimate union.

Mode of effecting this. Official preparation—*Powder of Ipecacuanha and Opium (Pulvis Ipecacuanhæ et Opii, U.S.)*—commonly called *Dover's powder*. Proportions of its constituents.

Therapeutical applications of this powder. Dose, 10 grains, to be repeated every four or six hours when copious and continued perspiration is required.

TARTRATE OF ANTIMONY AND POTASSA.

Cases to which tartar emetic is applicable as a diaphoretic. It probably acts both by directly stimulating the secretory function, and by the nausea which it induces. Dose, from one-twelfth to one-fourth of a grain, repeated every hour or two hours.

2. Refrigerant Diaphoretics.

CITRATE OF POTASSA.

Seldom kept in the shops already prepared. A soluble, deliquescent salt. Usually prepared extemporaneously in the state of solution. Employed in two forms, viz. the *neutral mixture* or *saline draught*, and the *effervescing draught*.

1. *Solution of Citrate of Potassa*.—*Liquor Potassæ Citratis, U.S.*—*Neutral mixture* or *saline draught*. Mode of preparation—proportion of ingredients when made with carbonate of potassa—propriety of straining in this case—proportion when made with the bicarbonate—proportion when citric acid in solution is substituted for lemonjuice. Dose, fʒss. every hour or two hours.

2. *Effervescing draught*. Ingredients and their proportions. Mode of preparation. Dose, fʒss. of the alkaline solution with fʒss. of the lemonjuice or acid solution. Addition of water. Cause and remedy of a failure to effervesce.

Taste of these solutions of citrate of potassa. Circumstances of disease under which they are especially applicable. Cases in which the effervescing draught should be preferred. The medicine sometimes occasions pain in the stomach and sometimes purges. Remedy for these effects. Tartar emetic added to increase its diaphoretic power. Spirit of nitric ether also added in cases of nervous irritation or typhoid tendency.

ACETATE OF AMMONIA.

This salt is employed only in solution. It is official in this form under the name of *Solution of Acetate of Ammonia (Liquor Ammoniæ Acetatis, U.S.)*. Commonly called *spiritus Mindereri*, or *spirit of Mindererus*. Mode of preparation. Reason for preferring distilled vinegar or diluted acetic acid to common vinegar. Colour and taste of the solution. Therapeutical applications. Dose, from fʒss. to fʒj., to be repeated every hour, two, or three hours.

NITRATE OF POTASSA.

Powers as a diaphoretic. Therapeutical applications. Usually combined with tartar emetic.

SPIRIT OF NITRIC ETHER.

Described under the head of diuretics. Powers as a diaphoretic. Indicated especially in febrile complaints attended with nervous derangement or typhoid tendencies. Particularly useful in the fevers of children, from its influence over the nervous system. Dose, 20 drops to fʒj., every two or three hours.

3. Alterative Diaphoretics.

GUAIACUM WOOD.—GUAIACI LIGNUM. U.S.

GUAIAAC.—GUAIACI RESINA. U.S.

Products of *Guaiacum officinale*, a large tree growing in the West Indies and South America.

Guaiacum wood. State in which it is imported—hardness—weight—form in which it is kept in the shops—colour—odour—taste—relations to water and alcohol. Its efficacy ascribable to the guaiac which it contains.

Guaiac. Concrete juice. Different modes of obtaining it. Form as found in the shops. Properties—colour—translucency—brittleness—fracture—colour of the powder and change effected in it by exposure—odour—taste—effects of heat—chemical nature—relations to water and alcohol, and to alkaline solutions.

Effects of guaiac on the system. Therapeutical applications of this and the wood. Dose of guaiac in powder, from 10 to 30 grains, to be given in sweetened water or mucilage.

Med Prop^s Sarsaparilla is a med. concern^g the efficacy of which many diff. opinions prevail. It is however hardly to be doubt^d from experience on the subject, but that it is an efficient medicine. It is said to increase perspiration, & urine but its precise mod^o operandi is unknown, & in this ignorance it is placed among the alteratives as are all those med^s which change exist^g morbid act^s with any obvious influence over the funct^s. Its most extensive & useful applicatⁿ is in ^{venery} syphilis & syphilitic diseases that shattered state of the syst^m follow^g the imprud^t use of merc^u in these aff^s. It is employ^d though with less benefit in chronic rheumat^{ism}, serof^u affect^s, certain cutaneous diseases & those deprav^d cond^{ns} of the syst^m for which it is difficult to find a name.

Decoct^m Sarsaparillae Composit^m Sliced & bruid^d Sarsaparilla 3vi. bark of Sassafras root sliced, rasped Guaiacum wood, liquorice root bruid^d āā. 3j. Mezereum sliced 3iij. Wat Oiv. boil 1/4 hour, strain. During the use of the decoct. the patient should wear flannel next the skin & avoid unnecessary expos^{re} to changes of temperature. It is gentle diaphoret. & alterative.

Syrupus Sarsap^{ae} Composit^s Bruid^d Sarsaparilla lbj. Guaiacum wood rasped 3iij. Hundred leaves Roses, Serena, liquorice root bruid^d āā. 3ij. Oil of Sassafras, Oil of Briss āā ʒi. Minor B. Bridgberry ʒiij. Dilut^d Alech. Ox. Sugar ʒviij. Mac^t the Sarsap^{ae} Guaiac. Roses, Serena & liquorice in the Alech 14 days. Express & filter. swapt^e the Kieck in a wat bath to Oiv. filter ad the sugar & when dissolv^d apply heat remove any scum which may form, strain the solutⁿ while hot. Lastly hav^d rubb^d the oils with a small quant^y of ^{the} Syrup mix them thoroughly with the remainder.

Extract^m Sarsaparillae Sarsaparilla root in coarse powder ʒvj. Dilut^d Alech Oiv. Moistem the Sarsaparilla with Oss. of the dilut^d Alech. let stand 24 hrs. then refer to a displac^t. separat^e add grad^{ly} the remain^g Alech. when it shall have all pass^d the sarsaparilla will not occasion to keep the pot. cov^d. Cease filter^g when the pass^d liquid begins to cause a precip^t with that which has already pass^d. Distil off the Alech & adapt the residue to a proper consistence. The fluid extract is pref^{er} by tak^g bruid^d Sarsap^{ae} root 3xvi. Bruid^d liquorice root, rasped Guaiacum wood, bark of Sassafras root āā. 3ij. Mezereum 3vi. Dilut^d Alech Oviij. Distil 14 days at ordin^y temperature strain, express & filter. swapt^e the Kieck in a wat bath to 3xii. add white sugar 3viij. & remove from the fire as soon as the sugar is dissolv^d. The dose of this is ʒj. ^{3 or 4 times a day} It has been seen with great apparent advantage in ^{venery} Syphilis.

Guaiaci Resina. Guaiac is the concrete juice obtained by spunking out or by incisions made in the trunk, also by sawing the wood into billets 3 ft long, burn the ends with an iron, place one end of the billet on the fire & receive in a calash the melt^d guaiac which flows out at the other end. The other mode is to boil the chips & send out in a solution of common salt & strain off the matter which floats, the surf.
Prop^s. The pieces are of a deep green^{ish} brown or dark olive col. external^y & internal^y wherever the air has penetrated. Those parts which have not come in contact with air are redd^b brown. Hyacinthine divers^d with shag^s of various col^s. When rubbed it frags & is made stiffer by heat. Tactile - it is perc^{pt}ible as acid & leaves a permanent sense of heat & pungency in the mouth & fauces. Brittle. Shins glass^y in part, translucent or splintery, the smaller fragments being translucent, provide a light gray, blue green y^{es} exposed to light. Soft in the mouth & melts with warm or heat. It is commonly called gum guaiac as it contains a peculiar resin & some tracing of kino gum. Wat dissolves a small part of guaiac 1 part to 12 wat. form a green brown sweet infus. Alcoh. dissolves guaiac entirely, the tinct^r is deep brown is deep pur^{pl} by heat & gives blue, green, & brown precip^{ts} with mineral ac^d. It is also sol. in the alk^{ali} sol^s & sulph^{ur} ac^d. Med Prop^s. Guaiac wood ranks as a stimulant & diaphoretic. It is used to palliate the 2^d & 3^d sympt^s of lues venerea & to assist the operatⁿ of more powerful remedies or to irritate the impure secret^s for ex^{tr}usion. It is a common remedy in syphilis. It has been thought useful in chronic rheumat^{ism}, gout, scroful^{ous} affect^{ions}, & other venereal affections & gonorr^{ea} but its powers have been much overrated - the ppl benefit had^{ly} probably have derived from its association & regimen. The decoctⁿ is prep^d by boil^{ing} 3j in wat Diss^{olve} into a pint. To be taken in 4th^{ly} Med Prop^s of Guaiac. Guaiac is useful & akerⁿ in procuring a sweat & a cathartic effect in the stomach & gives in the mouth a smart & pungent sensation. It is given to a patient in the form of a warm with op^{ium} & ipecac. or the autumn^{al} & assist^{ed} by warm drink it acts profusely in ex^{tr}uding the poison but the cathartic effect is open^{ed} it is also used in the purgation of the bowels & some cases of chronic dyspepsia. It has proved most useful in hematuria its acute form after depletion is given in combination with op^{ium} & ipecac, rather than the antimonials & in the chronic form is often useful alone. This prescripⁿ in gonorr^{ea}. Second^{ly} syphilis, scroful^{ous} diseases & cutan^{eous} erupt^{ions}. though the wood is more frequently used in these last diseases. Dr Dewees used it in amenorr^{ea} & dysmenorr^{ea}. The point is objectionable from the fact that it quickly aggr^{avates}. A soap of guaiac is recommended prep^d by dilut^{ing} the liquor doctⁿ with twice its weight of wat. boil lightly, then add^{ing} guaiac gradually & stirring so long as it dissolves, filter & exp^{ress} to a pilular consist^{ency} of this. It is taken daily in divid^{ed} doses.

It is as large as a pea & deep black when ripe. It is more in the U.S. grows in Mexico
Sassafras Pithy in slender pieces, very light & spongy, with a mucilag. taste, has the characteristic flavor
of sassa. It is a greenish matter which it imparts to wat. form a lump of mucilage & differs
from solut. of ordin. gum in remain^g lump when add^d to alcohol. mucilage is a mild & sooth^g applicatⁿ in
inflammⁿ of the eyes & for a pleas^g & useful drink in dysenteric, catarrh^l & nephritic diseases & is purg^g
by add^g 5j pith to boil^d wat. Bark of Sassafras root As found in shops it is in small irreg^l fragm^{ts}
somewhat inner P. with a brown epid^l of a redd^h or rusty cinnaⁿ hue brittle, frag^l of a lighter col^r than the
expos^d surf. odor fragrant, taste sweet & gratefully arom^{at}. Wat^r & alcohol extract its virtues which reside in
a volat^l oil which may be obtain^d by distillatⁿ. Med^l Prop^s: Stimul^g & perhaps diaphoretic. It is appl^d used
as an adjunct to more effic^g and improv^g their flavor & render^g them more cordial to the stom^{ach}. It is recommend^d
in chronic hem^{at}.^m catarr^h sm^{pt}: scorbutic & dyspeptic affect^s the infusion is the most conven^{ient} form
the active ppl being volatil^{ized} the extract & decoctⁿ are useless & inert preparat^{ns}.

Sarsaparilla.

Native of Honduras, Brazil, ~~Mexico~~. The root sends out a number of long thin ^{thin} jointed stems
with leaves from 10 to 12 inches long & 4 or 5 broad. Honduras Sarsaparilla is most used in the U.S. comes in
bundles 2 or 3 ft long composed of several roots fold^d lengthwise & secured by a few circular turns. These are pack^d
in bales of 100 lbs cover^d with skins. In some bundles many small fibres are found loose or adher^g to the roots
& part^s of the stem are also found. col^r of roots exteri^{or} dirty gray^h or redd^h brown. The cortical part beneath
the epid^l often presents an am^{alg}aceous fract^{ure}. Jamaica or red sarsapar^{illa} little known by that name in
the U.S. & is probably the Honduras variety. Jamaica sent only as a channel of exportatⁿ to Europe. Vera Cruz
Sarsapar^{illa} comes in bales of 200 lbs. roots somewhat smaller & thinner. bark, often much soil^d with earth. It is
not so much esteemed though perhaps quite as good as the former. Caracas Sarsap^{illa} & Brazilian Sarsap^{illa}
comes in bundles 2 to 5 ft long. It is thick bound by circular turns of a very flexible stem & is the most valuable
variety of this drug. Prop^s: The dried roots are several ft. long, thick as a goose quill, cylindric^{al}, & wrinkled long
itudinally, flexible & compos^d of a thick corticle cover^d with a thin easily separable epid^l & an inner
layer of irregular fibres a central pith. the epid^l is of ash col^r or gray^h brown or redd^h brown & somet^{imes} very dark.
the cortical part. is in some specimens whit^{ish} in others brown & not infrequently of a pink or russet hue & is occasion
ally white by the ^{solvent} starch. the central medulla often al^{so} in starch. In its ordin^{ary} state it is nearly
inert but in decoctⁿ has a peculiar & deest^{ed} smell. mucilag^{ous} to the taste & slightly bitter. chew^d it produces an acid disagree
able impression which remains long in the mouth & forces cold & hot wat^r & dilute alcohol. extract its virtues. long
boil^{ing} impairs the virtues of the root. the cortical & medullary matter both contain the active ppl. the latter
however in a less degree than the cortical part. sarsaparilla of the shops is very apt to be nearly & entirely inert
either from being kept from being deest^{ed} from its species. The only criterion of good sarsaparilla is
its taste. If it leaves a decidedly acid impression on being chew^d it is good. If otherwise it is probably inert.

Trinet Guaiac. P. Guaiac H. ss. Aleph. Oij. Mac^{te} 14 days & filter through paper. Dose ʒj to ʒij. 3 or 4
 Times a day in choric chemical^m & ʒj. Trinet Guaiac Ammoniac. P. Guaiac ʒij.
 An alk. spirit of ammonia, Ojss. Mac^{te} 14 days & filter through paper. This kind is very celebrated in
 chronic chemical^m & is thought to be more stimulant & effectual than the preceding like which it is
 decomposed by water & should be administered in some viscid Guaiacine vehicle which may be the
 Guaiacine in suspension. Dose ʒj to ʒij.

Mezerium.

All the species of daphne are possessed of active prop^{ty}, though the D. Mezereum & D. Genkwa are alone offic^l. They
 are hardy shrubs 3 or 4 ft high with a branch^l stem, smooth leaves, smooth dark gray bark, flowers before the
 leaves appear, flower^g in Feb. March or April accord^g to the severity of the climate. They are white or pale rose col. fragrant
 & in clusters, fruit an oval fleshy bright red or black berry contain^g a single seed native of S. Britain & is cultivated in
 gardens as an ornant & for medic^l purp^{se}. Prop^{ty} for strips 2 to 4 ft long, inch or less in breadth, some^l flat, again roll^d
 & hangs in bundles or wrap^d in balls, is cover^d with a gray or red brown wrinkled epit^h beneath which is a soft green^l
 tissue, the inner bark is tough, phloem fibrous & of a whit^l col. when fresh it has a nauseous odor, dried it is nearly insens^l.
 Taste 1st sweet then acid & even corrosive, yields its virtues to water by decoct^g also to alcohol. Daphnin though not inactive
 is not the p^l in which mezerion depends for its virtue. These are rather in an essential oil which by time & expos^{ure}
 becomes a resin with^l however losing its activity (Vauquelin) Gmelin & Dänik think it depends direct^{ly} on an acid resin &
 which is obtained by boil^g mezerion in alcohol, cool^g to let the wax & oil, distill^l & treat^g the residue with water which leaves
 the resin. Med. Prop^{ty}: the recent l^l applied to the skin produces inflammation & vesication & has been used in S. Europe
 as an emporpastic for a time immemorial. The dried l^l though less active is used some^l in France for frict^g in
 cases of sc^l & is not ad^l of the use of Spanish flies. A small square piece of l^l moisten^d with vinegar is appl^d to
 the skin & renewed twice a day till a blister is form^d & occurs, afterw^d to maintain in the discharge: it requires
 24 to 48 hours to produce vesication. an virulent ointment is prep^d with it & appl^d to blister^g & maintain
 discharges & to blister the throat. D^r Boerhaave the phloem of it has been used to give in it^l quality to hisse in peas.
 Intern^l it is stimulant & can be direct^l to the kidneys or skin, in large doses it excites purg^g, nausea & vomit^g for or worse
 it produces the fatal effects of the acid poison. It is said that the Russian peasants use the berries as a purg^g tak^g
 30 to produce the desired effect. The French writers say that ʒv suffices to kill a Frenchman. It is some^l used in 2^dary
 stages of gonorr^l & acts as an alterative in scord^l effect^g chronic chemical^l & obstinate fissures of the skin. For
 this purpose it is g^l given in decoct^g small pieces of the root chewed together & held in the mouth. Difficulty of swallow^g
 from paralysis of the g^l is cured by the use of the l^l in sub^l gr^l. it is also used in this form.

Sassafras.

An indigenous tree 30 to 50 ft high, 6 to 8 in diam. in the south state it is some^l larger for the same state, it is
 little more than a shrub. bark of the stem & of the branches rough & scaly & the extreme branch^l
 & twig is smooth & heart fully green. leaves pub^l glab^l 4 or 5 inches long flower small of pale yell^l green col.

There are two official tinctures, viz. the *simple tincture* (*Tinctura Guaiaci, U.S.*), and the *volatile or ammoniated tincture* (*Tinctura Guaiaci Ammoniata, U.S.*). Dose of either, fʒj. three or four times a day, to be given in milk, or sweetened water, or mucilage. The wood is usually employed in decoction. An ingredient of the compound decoction of sarsaparilla.

MEZEREON.—MEZEREUM. U.S.

The bark of different species of *Daphne*. *D. Mezereum* is officinally recognised. *D. Gnidium* and *D. Laureola* are also said to yield it. General character of these plants. Place of their growth.

Shape of the bark—structure—pliability—toughness—colour—odour—taste—relations to water and alcohol.

Among its constituents is a peculiar principle called *daphnin*; but its virtues are thought to reside in an acrid resin.

Effects upon the system. Operation upon the skin when locally applied. Therapeutical applications. Given in decoction with liquorice root—ʒij. of the mezereon and ʒss. of the root being boiled in Oij. of water to Oij. Dose, a teacupful four times a day. Mezereon is much used as an ingredient of the compound decoction of sarsaparilla.

SASSAFRAS.

The officinal portions of *Sassafras officinale* (*Laurus Sassafras* of Linnæus)—an indigenous tree—are the bark of the root (*Sassafras Radicis Cortex, U.S.*), and the pith of the twigs (*Sassafras Medulla, U.S.*). Properties of the bark as kept in the shops—form—colour—odour—taste—relations to water and alcohol.

Active constituent, a volatile oil called *oil of sassafras*. Mode of procuring the oil—its colour—odour and taste—specific gravity—action upon caoutchouc.

Effects on the system. Therapeutical use. Employed chiefly as an ingredient of the compound decoction of sarsaparilla. The infusion may be given *ad libitum*. Dose of the oil, from 2 to 10 drops.

Sassafras pith. Form—colour—levity—odour and taste—relations to water—character of its mucilage. This is made with ʒj. of the pith to Oj. of boiling water. Therapeutical uses.

SARSAPARILLA. U.S.

The roots of several species of *Smilax*, as *S. officinalis*, *S. syphilitica*, &c. Ascribed incorrectly to the *S. Sarsaparilla*. Native country of these plants. Their general character. Places where the root is collected and whence it is imported into this country. Commercial varieties. State in which the root is imported.

Shape of the root—size—structure—character of the surface—colour—odour—taste—relations to water and alcohol—effects of long boiling—relative value of the cortical and medullary portions.

Active properties thought to reside in a peculiar principle, which should be called *sarsaparillin*.

Effects upon the system. Modus operandi. Therapeutical uses. Given in powder, infusion or decoction, syrup, and extract. Dose of the powder, ʒss. to ʒj, three or four times a day. An infusion, and a *compound decoction* (*Decoctum Sarsaparillæ Compositum, U.S.*) are officinal. Constituents of the decoction and mode of preparation. Dose, fʒiv., three or four times a day. There is also an officinal Syrup (*Syrupus Sarsaparillæ Compositus, U.S.*). Composition of the syrup. Dose, fʒss., repeated as above. Dose of the *alcoholic extract* (*Extractum Sarsaparillæ, U.S.*), from 10 to 20 grains. This is an excellent preparation. Mode of preparing the *fluid extract*. Dose, fʒj.

CLASS XII.

EXPECTORANTS.

General Observations.

Medicines which increase the secretion from the mucous membranc of the air cells and air passages of the lungs, or facilitate its discharge.

They may be conceived to act by relaxing the secretory vessels when in a state of constriction, or by stimulating them to increased action, either by an immediate influence or by the sympathies which connect the lungs with the stomach. There is also another mode in which certain expectorants operate. The bronchial secretion may be in such quantities as to exceed the powers of expectoration possessed by the patient. This may arise either from the great abundance of the secretion, or from the great debility of the muscles concerned in expectoration. The excessive quantity of the bronchial fluid may result from a debilitated condition of the vessels. Stimulating medicines here prove expectorant by imparting tone to the secretory vessels, thus diminishing the amount of secretion and bringing it within the power of the patient to discharge conveniently, or by increasing the muscular strength, and thus enabling the patient to exert himself more vigorously in its discharge. It is obvious that, in such cases, those medicines must be most efficacious which, with a general stimulating power, unite an especial tendency to the lungs. Practical illustrations.

During the administration of expectorants, the surface should be kept warm, and flannel should be worn next the skin.

Emetic substances usually prove expectorant in small doses. *Ipecacuanha* is sometimes given in doses of one or two grains, and *tartar emetic* in the dose of one-eighth of a grain more or less. For the same purpose, the *wine of ipecacuanha* or *antimonial wine* may be used, the former in the dose of about 30 drops, the latter in that of 15 or 20 drops or more. Cases to which these medicines are applicable as expectorants.

SQUILL.

The origin, commercial history, chemical properties, and effects of squill as an emetic and diuretic have been before treated of. Character as an expectorant. Circumstances under which it may be advantageously employed. Dose, in substance, one grain several times a day. Usually employed in the liquid form. Official preparations, *vinegar*, *syrup*, *oxymel*, and *tincture*. Dose of the vinegar (*Acetum Scillæ*, U.S.), fʒss. to fʒj.—of the syrup (*Syrupus Scillæ*, U.S.), and of the oxymel (*Oxymel Scillæ*, U.S.), from fʒj. to fʒij. Mode of preparing the syrup and oxymel from the vinegar. Dose of the tincture (*Tinctura Scillæ*, U.S.), from 20 to 40 drops.

GARLIC.—ALLIUM. U.S.

Bulb of *Allium sativum* or garden garlic, a native of Europe, and cultivated in this country. Character of the bulb. State in which it is brought into the market.

Shape, structure and consistence of the lesser bulbs or cloves—odour—taste—relations to water and alcohol.

The virtues of garlic reside in a volatile oil. The expressed juice owes its virtues to the oil.

Effects on the system. Mode of operating. Therapeutical uses. The expressed juice most conveniently administered. Usually mixed with sugar. Dose for a child from fʒss. to fʒj.

SENEKA.—SENEGA. U.S.

Root of *Polygala Senega*, an herbaceous perennial plant, indigenous in this country.

Shape of the root—structure—colour—colour of the powder—odour—taste—relations to water and alcohol—relative virtues of the bark and woody portion.

Its activity is thought to depend on a peculiar acrid principle called *senegin*.

Effects on the system. Therapeutical uses. Given in powder or decoction. Dose of the powder, from 10 to 20 grains. The decoction usually preferred. Prepared by boiling ʒj. of the bruised root with ʒj. of liquorice root in Oiss. of water to Oj., and given in the

Scilla.

As an expector^t it is used in defic^t & superabund^t secret. from the bronchial mucous memb^{re} in the former case usually combin^d with tartar emetic or ipecac. in the latter frequently with the stimulat^e expect^t for both cases it operates by stimulat^e the vessels of the lungs; & where the inflammatory act. of this organ is consid^{er}able as in pneumonia & severe catarrh the use of squill should be preceded by the lancet. Acetum Scillae. bruis-squill 3iv. Dist^d vinegar ʒij. Aleoh. ʒij. Mac^t the squill in the Dist^d Vinegar in a close glass vessel 7 days, express & set by that the dregs may subside, pour off the clear liquid & add the Aleoh. or may be prep^d by displacem^t obtain^d ʒij of filtered liq. then add the Aleoh. it should be given in some aromatic wat^r to cover its nauseat^e effect. The symp^s & expec^t are pret^{er} to it. Syrupus Scillae. Take Vinegar of squill ʒj. refined sugar ʒiij. add together & when the sugar is dissolved apply heat, remov^e any scum which may form. filter while hot. is a good expect^t & specially combin^d with a solutⁿ of Tartar. Antimony dose ʒj. Oxymel Scillae. Clarif^d honey ʒiij. Vinegar of squill ʒij. Mix & wapt^e by means of a wat^r bath to a proper consist^{en}cy. an expect^t in chronic catarrh, humoral asthma, whoop^e cough & c^{on}st^{ant} in those cases where the bronchial tubes are load^d with a viscid mucus of difficult expectoratⁿ. It is not superior to the Syrup. Tinctura Scillae. Squill ʒiv. Dilut^d Aleoh. ʒij. Mac^t 14 days, express & filter through paper. It may also be prepar^d by displacem^t until ʒij of filter^d liquor are obtain^d. It may be given whenever the spirituous m^{en}struum is not objectionable. For further details see Page 47.

Allium.

A perennial bulbous plant, with numerous small bulbous roots is a common tender annual cover^d from the beach in which the fibre consists of 1st the proper 1st & 2nd stems simple 2 ft. high, leaves long flat & grass like, flowers are small & white form^d a terminal cluster of flowers & bulbs on the end of the stem they appear in July, grows wild in Italy, Sicily & South France & is cultivated in gardens all over the civil^{ized} world. It is dug up with a part of the stem, dried, tied in bunches & sent to market. They lose 3 parts in 5 of weight by dry^{ing} with little diminution. Their sensible prop^y is known as myshk^{is} which is distinguished from the common wild garlic. Prop^y is somewhat spherical, flattened at bottom, drawn towards a point at summit where a part of stem projects, is colorless white, dry, somewhat scabrous & consists of several delicate laminae within which the small bulbs are arranged the stem each has 2 distinct coats. There are 5 or 6 in number, of an oblong shape, slightly curved & inter^{sect}ed, are soft, moist & fleshy. odor peculiar pungent & disagreeable call alliacous. taste bitter & acrid. Wat. alcohol & vinegar extract its virtues, long boil^{ing} renders them inert. The essential oil which is very volatile is obtained by distillation, is yell. & pungent, taste acrid, irritates & excites the skin. Med Prop^y: it and stimulant, quickens the circulation, excites the nerves, ex^{tr} promotes expectoration produces diaphoresis or diuresis according as the patient is kept warm or cool. acts on the stomach as a tonic & carminative. & is said to be emmenagogue. applied to the skin it is irritant & rubefies & brings excre^{ta} to its effect on the eye by absorption taken internally its active principle is rapidly absorbed & carried throughout the system being found in many of the secret^{ions}. Moderately emphy^{sic} it is good in indurated Digest. & flatulences. it is useful in pectoral affect^{ions} where inflammation has been subdued & a feeble cond^{ition} of the vessels remains. it is much used in cases of children & also in their nervous system & dyspepsia. it is used in atonic dropsies & catarrhs of the uterus, & in menorrhoea. It is an excellent antispasmodic. if largely taken in excited states of the system it causes gastric inflammation, flatul^{ence}, hiccoughs, headaches & fever. it is more needed in atonic than in ven^{er}al. Unid^{ed} & applied to the feet it is a revulsive in disorders of the head. & is very useful in children's fevers, quiet^{ness} restlessness & produces sleep. in the same state it is used to resolve indolent tumours. Its juice mixed with oil or brandy & steeped in spirits it is used as a liniment in children's convulsions & other of their spasmodic & nervous disorders. the same is used in some cutaneous aff^{ections}. A clove^{or small bulb} of garlic. or a few drops of juice introduced into the ear are efficacious in atonic deafness. the bulb is applied in poultice above the puls^{ation} has restored each of the bladder is excised. & urine from debility of that organ. the clove may be swallowed whole or in thin pieces. Dose 3ss to 3j. or even 5ij of the fresh bulb.

Senega.

The root occurs in commerce from the size of a straw, that of the little finger, present^{ing} a thick, knotty head which shows the bases of numerous stems. Paper 2 brownish, thin^{ned} often marked with crowded & smaller for tuberosities & with a project^{ed} hel^{ix}-like line running its whole length. The species is many; has a strong crack^{le}. All brown in the younger roots & brown gray in the older ones in the smaller branches lighter yell.

The bark is hard & resinous & contains the active prin^{ce} of the root. gray powder. It is sweet & strong in the fresh root, faint in the dry. Taste 1st Sweet & mucilag^{ous}; then pung^{ent} & acrid leaves 2nd an irritat^{ing} sensat^{ion} in the fauces. boil^{ing} wat^{er} & alcohol extract its virtues. Dilut^{ed} dec^{oction} is an ex^{cellent} solvent. The central, white ligneous part, is inert & should be reject^{ed} in the prep^{aration} of the powder. Med^{ical} Prop^{erties} Seneca is a stimulat^{ing} expect^{orant} & diuretic. In large doses emetic & cathartic. & occasionally diaphoretic & emmenagogue & increas^{es} the flow of the saliva. Its act^{ion} is more especially direct^{ed} to the lungs. & is apply^{ed} used for its expect^{orant} virtue in cases not attend^{ed} with inflammatory act^{ion} or where it has been subdued. It is very useful in chronic catarrhs, humoral asthma, 2nd stages of croup, & in pleurisy pneumonia with a after depletion. As a purge & vomit it is useful in rheumat^{ism} & it is said to have cured dropsy. It has been given in Scurvy & is recommended in rattle-snake bite.

Philulae Scillae Compositae. poud^{r} Scilla 3i. Poud^{r} ginger, Poud^{r} Ammiac, $\bar{a}\bar{a}$ 3ij. Soap 3ij.
Syrup Q. S. Mix the poud^{r} together, heat them wth the soap, add the syrup so as to form a mass
divide into 120 pills, from 5 to 10 gr. may be given 3 or 4 times a day. For details in *memoriae*. See Page 25.
Assafoetida.

See Page 24.

Solutanum.

The balsam of Solu is procured by making incisions into the trunk of the tree. The exud^d juice is rec^d in
vessels in which it concretes. It is brought from Carthage in calabashes or bathⁿ earthen jars of a
pearl^l shape & some^l in glass vessels. Prop^s: It is imp^{rt} it has a soft tenacious consist^{ce} which varies
with the temperature, by age it turns hard & brittle like resin, is shin^g translu^{ct} of a redd^h or yell^h brown
col. a highly frag^{ant} & warm, sweet^l pung^{ent} & not disagreeable taste. expnd to heat, it melts, burns &
gives out an agreeable od. while burn^g is sol. in Alcoh. & the essential oils. Boil^d wat^r extracts its benzoic
acid. Dist^d with wat^r it gives a small port. of volat. oil. & if the heat is cont^d benzoic ac. sublimes.
benzoic ac. is obtain^d by sublimat. as above or take of the balsam^l Q. S. Put it, previously mix^d
with an equal weight fine sand, into a suitable vessel, by means of a sand bath with a grad^u
increas^d heat, sublime till vapours cease to rise. Deprive the sublim^d matter of oil by pressure
in bibulous papers & again sublime. Benzoic ac. is officⁿ prop^s: as above, from Benzoin w^{ch}
which it is is end. It is in soft, white, feathery crystals, of a silky lustre, & not pulverulent. from
solut. it crystallizes in transp^{ar} prisms, when pure it is mod^l when prop^s: as above, it has an agreeable
or mat^l od. depend^g on the pres^{ce} of an oil which may be separ^{at} by dissolv^g the Al. in Alcoh.
& precip^{it} with wat^r. Taste, acid, warm & acridulous, unalterable in air melts at 230. vapourises
by a slight increas^d of it's temp^r in suffocat^d vap^{or} slightly sol in wat^r. Its acid prop^s: are not
powerful it is compos^d of 12 equiv benzole, 1 oxyg. 1 wat^r. It is irritant to the mucous memb^{re} and
stimul^{ant} to the syst. but is seldom used inter^{nal}. It has been prop^s: as a remedy in uric ac. deposit^s.
in the urine & for the chalk-like concretions of urate of soda in the joints of gouty individuals.
convert^s the uric into hippuric ac. & consequently the insol. urates into sol^l hippurates. It
is conveniently given with 4 parts phosphate of soda or a part & a half of phosphate of soda, dose 10 to 30 grs.
Mod^l Prop^s: Balsam of Solu is a stimulant tonic with a peculiar tendency to the pulmonary organs
It is given in chronic catarrh & other pectoral complaints need a gentle stim^l expect^{ant} but should only
be given after the red^{uct} of inflammation. Its pleas^{ant} flavour renders it popular & common. The vapours of
the ether cal^d sol^l, some^l prop^s: to relieve Asth^{ma} & other coughs, dose grs. x to xxx frequently repeat^d
The mod^l made by kick^{ing} it with gum arab^{ic} & loaf sugar then with wat^r is the best mode of
administ^{rat}. The mod^l prop^s: with balsam 3ij to Alcoh. Oij contains too large a part of Alcoh.
to allow of its adon^{ag} use in ordinary cases. It is compos^d of wat^r, dose f 3j to 3ij.

dose of $f\tilde{3}j$. or $f\tilde{3}ij$, three or four times a day, or in smaller quantities more frequently repeated. There is an officinal syrup of seneka. Composition of the *compound syrup of squill* (*Syrupus Scillæ Compositus*, U.S.), commonly called Cox's hive syrup.

BLACK SNAKEROOT.—CIMICIFUGA. U.S.

Root of *Cimicifuga racemosa*—an herbaceous, perennial, indigenous plant—growing in woods. Sometimes called *Cohosh*.

Shape and size of the root—colour—odour—taste—relations to water as a solvent.

Effects on the system. Therapeutical applications. Given in substance and decoction. Dose of the powder, 10 to 30 grains—of the decoction, made in the proportion of $\tilde{3}j$. to Oj , $f\tilde{3}j$. or $f\tilde{3}ij$, several times a day.

AMMONIAC.—AMMONIACUM. U.S.

Inspissated juice of *Dorema Ammoniacum*—an umbelliferous plant, growing in Persia. Mode of collection. Place of export, and route by which it reaches this country. Two forms, that of *tears*, and that of *masses*.

Size and shape of the *tears*—colour externally—brittleness—fracture—colour of the fractured surface.

Shape of the *masses*—appearance when broken—liability to impurities.

Properties of ammoniac—odour—taste—effects of heat—relations to water and alcohol—chemical constitution.

Effects on the system. Therapeutical uses. Dose, 10 to 30 grains. Usually given in emulsion, sometimes in pill. The *compound pills of squill* (*Pilulæ Scillæ Compositæ*, U.S.) are an excellent expectorant.

ASSAFETIDA.

Before described. Here spoken of only as an expectorant. Character in this respect. Therapeutical uses. Dose, from 5 to 15 or 20 grains. Given in pill or emulsion.

BALSAM OF TOLU.—TOLUTANUM. U.S.

Product of *Myroxylon Toluiferum*, a tree growing in tropical America. Mode of obtaining the balsam. State in which it is imported.

Consistence as in the shops—colour—translucency—odour—taste—effects of heat—effects of exposure—relations to water and alcohol.

Essential constituents, resin, volatile oil, and benzoic acid. Mode of separating the acid. Form, colour, and sensible properties of *benzoic acid*. A characteristic ingredient of the balsams. Uses.

Effects of tolu on the system. Therapeutical uses. Dose, 10 to 30 grains. Given most conveniently in emulsion. There is an officinal tincture. Objection to this preparation for ordinary use. Dose, $f\tilde{3}j$. or $f\tilde{3}ij$.

BALSAM OF PERU.—MYROXYLON. U.S.

Product of *Myroxylon Peruiferum*—a native of tropical America. Mode of obtaining the balsam. State in which it is imported.

Consistence—colour—odour—taste. Constituents, resin, volatile oil, and benzoic acid.

Internal and external use. Dose, $f\tilde{3}ss$.

CLASS XIII.

EMMENAGOGUES.

General Observations.

Medicines which promote the menstrual secretion. Observations in relation to this function. The question considered whether any medicines exist, which have the peculiar property of exciting it. An affirmative opinion given. Emmenagogues may act either by reaching the uterine vessels through the circulation, or by the extension to them sympathetically of an impression made elsewhere. They act with greatest certainty if given so that their full influence may be felt shortly before the regular period for menstruation. The state of the system should always be considered before prescribing them. If the suppression of the menses be accompanied with a plethoric condition of the blood vessels and the existence of inflammation or a strong inflammatory tendency, they should be preceded by depletory measures, and the milder individuals of the class should be selected. If debility exist, those of a tonic or stimulant character should be preferred. If the affection be attended with constipation of the bowels, the cathartic emmenagogues are obviously indicated.

PREPARATIONS OF IRON.

The *chalybeates* considered as on the whole not inferior to any other medicines in emmenagogue power. Applicable to all cases unattended with local inflammation or general excitement. The *subcarbonate of iron*, or *pills of protocarbonate* preferred. Often combined with aloes.

ALOES.

One of the most effectual emmenagogues. Believed to exert a specific influence on the uterus, independent of its mere cathartic property. Probably operates through the medium of the circulation. Cases to which it is applicable. Mode of administration. Dose, 1 or 2 grains, two or three times a day.

BLACK HELLEBORE.

Said to be emmenagogue even when it does not act as a cathartic. Apt to be feeble as found in our shops. Cause of this. As an emmenagogue, usually given in tincture. Dose, fʒss. to fʒj., two or three times a day.

SENEKA.

Esteemed emmenagogue by some. Stimulant to the secretions generally. Affects one or another, according to the circumstances under which it is given. It has no especial direction to the uterus, but, in consequence of its general influence over the secretions, it may restore menstruation if given with due reference to the natural indications.

GUAIAIC.

Before spoken of as a stimulant diaphoretic, with occasional tendency to act on the bowels or kidneys. Believed also to have a decided tendency to the uterus. Found in numerous instances to be an effectual emmenagogue. Particularly applicable to cases associated with rheumatism, especially in its neuralgic forms. Use in dysmenorrhœa. Generally administered in the form either of the simple or the ammoniated tincture. Dose, fʒj. three or four times a day.

SAVINE.—SABINA. U.S.

Leaves of *Juniperus Sabina*—an evergreen shrub, indigenous in the south of Europe. General character of the plant.

Shape of the leaves—colour—odour—taste—relations to water and alcohol.

Active principle, a peculiar volatile oil called *oil of savine* (*Oleum Sabinæ, U.S.*). Colour of the oil—sensible properties.

Effects of savine on the system. Operation upon the uterus. Unpleasant results from its use in pregnancy. Dose of the powder, from 5 to 20 grains, two or three times a day—of the oil, from 2 to 5 drops.

SPANISH FLIES.

Character as an emmenagogue. Remedial employment in reference to this property. Cases in which they are contra-indicated. Dose of the tincture, from 20 drops to fʒj., three times a day.

Ferrum.

See Ferrum & its Preparations Pages 18 & 19.

Aloes.

Has a decided effect upon the Werm. syst. its emmenagogue which is somewhat ^{considerable} has been by some attributed to a sympathetic extension of irritation in the rectum to the Uterus, but its emmenagogue power is by no means confined to cases in which its action upon the neighbour^g intestine is most conspicuous, besides which there is no reason why it should not exert its specific action. A peculiarity of its cathart^c act. is that an increase beyond the medium dose is not attended with a corresponding increase of effect. Applied to a blister-surf. it acts in the same way, as when taken internally. It is very frequently used in Amenorrh^{ia} in which it is very efficacious if given in enema about the period at which the menses should appear. See Pages 41 & 42.

Nelleborus.

Is injured by dry^g & further by long keep^g besides it is often mixed with roots of other plants not of the same genus. It is esteemed by some as the most unvarying emmenagogue, for further details see Pages 42 & 43.

Senega.

See Pages 54 & 55.

Guaiacum.

It was much relied upon by Dr. Sowerby in the cure of amenorrh^{ia} and dysmenorrh^{ia}. For further details see Pages 52 & 53.



Sabina.

An evergreen shrub from 3 to 15 ft high with numerous small, dark, shining leaves on the back of the leaves which are green. The young branches are green. The leaves are somewhat in the shape of a lanceolate, small, thick, firm, smooth, shining, dark green in the winter. The flowers are small & female in the axils of the leaves. The fruit is a blackish-purple berry containing 3 seeds. Native of South America. It is said to grow in the mountains of Peru. The seeds of the branches & the leaves, which they are used to make a decoction of in the spring, & fade by drying. They have a strong, heavy, resinous, & a little acrid taste. The property of the resin from the volatile oil, which can be procured by distillation with water.

Oil of Sabina is a colourless or yellowish, impure, strong, resinous oil of a bitter & extremely acrid taste. It is stimulant, emmenagogue & actively rubefacient & may be given for the same purposes as the bark in sub. It has been much used empirically in cases of uterine & to produce abortion & sometimes with fatal results. Dose gr iij to gr v.

Med. Prop. Sabina is slightly stimulant & is used mostly in the form of the decoction of the stem & the leaves of the latter of which it is supposed to have a peculiar effect. It has been recommended in various cases & occasionally in women. Dr. Chapman recommends it in chronic menorrhagia. It produces gastro-intestinal inflammation & should be cautiously used. It should in no case be given if much local or general inflammation exists. It should be avoided in pregnancy. It forms an irritant & is very useful for maintaining a discharge from blisters. In Europe the powder or infusion is used as an application to warts, & is used in earaches, & gangrenous ulcers & haemorrhoids & the capitis & the sapres - juice of the fresh leaves mixed with water is sometimes used for the same purposes.

Cantharis.

See Pages 50 & 58.

CLASS XIV.

SIALAGOGUES.

General Observations.

Medicines which promote the secretion of saliva. Some substances taken internally produce this effect, as mercury, &c., but, as they are not used in reference to their sialagogue operation, they cannot properly be noticed here. The only medicines actually employed for this purpose are such as produce the effect by being chewed. All irritants may thus prove sialagogue. None are used exclusively with a view to this effect. When any medicine is employed as a sialagogue, the fact is noticed under other heads. Sialagogues are useful either as revulsives or direct irritants. In the former capacity they are applicable to rheumatism of the face, toothache, &c., in the latter, to paralytic affections of the tongue and throat.



CLASS XV.

ERRHINES.

General Observations.

Medicines which promote the secretion from the mucous membrane of the nostrils. As they usually excite sneezing, they are also called *sternutatories*. No medicines taken internally are known to have a peculiar reference to this function. None are employed as errhines, except by local application to the nostrils. The principles of their action are the same as those of the sialagogues. When any substance is employed as an errhine, the fact is mentioned under other heads. None used exclusively for this purpose. Applied by snuffing them up the nostrils in the form of powder. If very acrid, they should be diluted with some inert substance.

CLASS XVI.

EPISPASTICS.

General Observations.

Medicines which, when applied to the skin, produce a blister. Also called *vesicatories*. They act by producing inflammation of the skin, the vessels of which relieve themselves by the secretion of serous fluid under the cuticle. They prove useful as remedies in various ways.

1. They act indirectly as general stimulants. The system is excited by sympathy with the local inflammation. This effect is greatest during the rubefacient action of the epispastic, and is diminished when the cutaneous inflammation is relieved by the effusion of serum. As general stimulants, they may be used in typhoid diseases, and in intermittent or remittent complaints in which it is desirable to supersede the paroxysm by a strong impression on the system. Remarks as to the proper circumstances of application in both cases.

2. They are powerfully revulsive. In this way they prove useful in various nervous irritations and in inflammations. In cases of mere local determination of blood, they are usually best applied at a distance from the part affected; in inflammations, as near the seat of disease as possible. Grounds of this difference. Another practical rule is that, in inflammatory affections, they should not be applied during the existence of high febrile excitement. Grounds of this caution.

3. They substitute their own action, which spontaneously subsides, for the diseased action existing in the part to which they are applied.

4. They act as local stimulants.

5. They produce local depletion, which, though not abundant, often proves highly useful in inflammation.

6. The pain they occasion is sometimes useful in hypochondriacal cases.

7. They are employed to separate the cuticle, so as to procure a denuded spot for the application of medicines.

SPANISH FLIES.—CANTHARIS. U. S.

Cantharis vesicatoria. Synonymes. *Meloe vesicatorius*. *Lytta vesicatoria*. Countries in which the insect is found. Situations frequented by it. Mode of procuring and preparing it for use.

Shape and size of the fly—colour—colour of the powder—odour—taste—relations to water and alcohol—attacks of insects and results.

Blistering property thought to reside in a peculiar principle called *cantharidin*. Form, colour, and solubilities of this principle.

The following official preparations are worthy of notice.

1. *Cerate of Spanish Flies*—*Ceratum Cantharidis*, U. S.—commonly called *blistering plaster*. It is the *Emplastrum Cantharidis* of the London Pharmacopœia. Constituents and mode of preparation. Mode of application. Used for blistering.

2. *Ointment of Spanish Flies*—*Unguentum Cantharidis*, U. S. Mode of preparation. Used to dress blistered surfaces in order to maintain a discharge.

3. *Plaster of Pitch with Spanish Flies*—*Emplastrum Picis cum Cantharide*, U. S.—more frequently called *Emplastrum Calcificans*, or *warming plaster*. Constituents. Uses.

4. *Liniment of Spanish Flies*—*Linimentum Cantharidis*, U. S.—generally called *decoc-tion of flies in oil of turpentine*. Mode of preparation. Uses.

Practical remarks on blistering with cantharides. Local action of the epispastic. Strangury a frequent result. Probable cause. Modes of prevention. Treatment. Sloughing of the skin in the blistered part sometimes results. Cause of this occurrence. Rules for applying blisters. Remarks in relation to their size and shape, the means of attaching them to the skin, the previous preparation of the skin, the duration of their application, the difference in this respect between children and adults, mode of dressing blisters, mode of treating them when inflamed, and the means of sustaining the discharge so as to form a perpetual blister.

POTATO FLIES.—CANTHARIS VITTATA. U. S.

Synonymc, *Lytta vittata*. An indigenous insect. Plants on which it is found. Mode of collecting it. Size, shape, and colour. Sensible properties similar to those of the Spanish flies. Chemical composition probably similar. Uses the same.

Cantharis.

Cantharides come from Spain. Italy southⁿ France southⁿ part of southⁿ Europe & West India. consid^{ble} quantities come from St Petersburg deriv^d probably from Southⁿ Russia where they are very abundant. The Russian flies are most esteemed & may be distinguished by their greater size & their col. approx^{im}at^{ely} to that of copper. In the state of larva they live underground & gnaw the roots of plants they gr^{ow} appear in swarms in the Months of May & June, attachth themselves preferably to the white poplar, ash, privet, elder & lilac upon the leaves of which they feed. They are taken about sunrise, when they are torpid from the cold of the night & easily let go their hold. linen cloths being spread beneath the trees, persons with their faces & hands protect^{ed} by masks & gloves shake the trees or beat them with poles they fall & are receiv^d in the cloths. they are then plung^d into vinegar dilut^d with wat. or expos^d in sieves to the rays³ of bright sun: then dried by the sun or by artificial heat. They are somet^{imes} gather^d by burn^d brown trees under the trees. When perfectly dry they are pack^d in close boxes & export^d. Prop³. The live insect is 6 to 10 lines long by 2 or 3 broad. of a beautiful shining green col. head large & heart shaped: bear^{ing} 2 thorax like black joint^{ed} feelers. thorax short & quadrilateral, the wing sheaths long flexible, cover^d brownish membrane wings. odor strong penetrat^{ing} & fetid like that of mice & by which swarms may be detect^d at a consid^{ble} distance. Dried Spanish flies preserve the form, col^{or} to a certain extent the odor

of the living insect. They have an acrid, burning taste. ground by a mortar & pestle with
shin^g particles which are the frag^{ts} of the feet, head & wing-cases if kept perfect in substance
they will retain their vesicating prop^{ty} for a long time. To dampen the soon
putrefy. this change takes place most speedily with powder. they should therefore be kept whole. the
powder should be well dried & kept in air tight vessels they should not be purchased in powder as
in addⁿ to this liability, they are very easily adulterated in powder. however carefully managed they are
apt to be attacked by mites which feed on the interior of the body reducing them to powder while the hard
exterior parts are not affected. their virtues are thus in some measure impaired: a good preventative to
this is to expose them whole or in powder $\frac{1}{2}$ an hour in close glass bottles to the heat of boil^d wat^r. which
destroys the eggs of the insect without injury to the flies. when the flies are killed by the vapours of pyrolytic
acids instead of being injured they acquire an odour which tends to their preservation. they bear consid^{er}
heat without losing their brill^l col. & they may be water-leached, either or the oils be deprived of their virtues & yet
retain this eff. shin^g particles of the wing cases have been discovered in the human skin months after death.
Cantharidin. a white subst in the form of crystal^l scales of a shin^g mm. acorns appear^l mixed in wat^r
& cold Aleoh. sol. in ether, the oils & boil^d Aleoh which deposits it on cool^g.

Cantharidis. The insect is in powder. ʒj. tallow, & in, cast, aa ʒviij. To
the Wax, resins have previously melt^d to ether, add the spanish flies, stir the mixtⁿ till cool.
It should be spread on sort leather, though in a very thin layer. An elegant mode of
prepar^g it is to spread a piece of leather with
in over the skin, adhere to the skin, heat it & not be used in great^{ly} the rate.

Unquentum Cantharidis. Resinous ointment ʒviij. Cantharides in fine powder ʒj. Melt the oil in
white in it the canth^{arides} stir^d brightly as it concretes on cool^g. These ointment cannot be used by those subject to skin
from the external application of cantharides. Complastrum Sicis cum Cantharide. Burgundy Pitch
lbviijss. Cerate of spanish flies lbss. Melt them together by means of a water bath & stir till they thicken on
cool^g. it is used in chronic rheumat^{ism} & various chronic internal diseases attend with inflammation & inflammatory
tendency. ascatach, asthma, pericarditis, pleth^{is}, hepatitis & the sequelae of pleurisy & pneumonia. The
mode of the resort to of spanish flies on the surf^{ce} of burgundy pitch is altogether objectionable. This plaster
is an excellent rubefacient, better than burgundy pitch & will be useful the patient has a very excitable
skin & once vesicated. Linimentum Cantharidis. Spanish flies in powder ʒj. oil of turpentine Oss.
Digest 3 hours by means of a water bath & strain. Oil of turpentine is an excell^l solvent of the active ppl^l
of cantharides & when impregnated with it requires in ʒviij. it is an excellent p^{ro}p^{er} of those of a powerful
dispositional. it is a good external stimulant in the prostrate states of typhus fever, &c. must however be used
cautiously both as regards its strength & to the extent of its use, as it may cause severe & even
erous vesicatal. if too powerful, it may be weakened by the addⁿ of olive oil or linseed oil.

act on the system & the local effect in the skin is to produce a series
of small vesicles or the cicatrix. Therefore they often cause a strong erythema must proba-
bly result from the absorption of the active principle of the fluid. the most certain mode of avoid^g these
unpleasant effects is to remove the application after it has served its full & salutary effect & further
to favour resorption by the use of an emollient poultice. Another mode is to administer a small
wineglassful of the decoction of hellebore very hour or once. Two hours after the application of
the blister. the local effect of a blister is attended with great excitement of the system which renders them
valuable auxiliaries to internal stimulants in low typhoid condition of disease & they may sometimes
be safely used with this view when the latter remedies are inadmissible. The power of impression
which they make upon the system for the subject morbid association & it is permitted a turn of
healthy action hence their use in remittent & intermittent fevers in which they should be in full operation at
the period for the recurrence of the paroxysm. They are very useful as recursively draw^g the nervous
energy & the circulation of fluids to their vicinity they relieve irritation & inflammation of internal parts.
In these latter cases they should be preceded by direct depletion. Blisters frequently substitute the
action of morbid action previously exist^g in the part where they are appl^d hence their use
in rheumatism, obstinate herpes & various cutaneous diseases also in erysipelas. Their very pain
is sometimes useful in withdrawing the attention of the patient from subjects of agitated reflection.
In some persons they produce a poisonous impression, cause frequent pulse, dry mouth & fauces, hot skin
sulphuric tenderness & even convulsions. These effects depend upon idiosyncrasies & occur
rarely. Upon the application of the plaster the skin should be rubbed with warm vinegar or the liquor
the surface of the plaster should be closely coated with very thin grease or vaseline which pre-
vents the contact of the plaster to the skin. In adults when the full effect of the blister is desired
continue the application 12 hours upon the scalp 24 hours. In delicate persons & those liable to
strong erythema, or upon parts of a loose texture or when the object is to produce a blister to the heat
as soon as possible the plaster should not remain more than 5 or 6 hours or less & should be
followed by a bland & nutritive poultice as before stated. In young children they cannot produce a serious
& fatal result from ulceration caused by a too long application from 2 to 4 hours is generally sufficient
therefore when the heat of other parts is to be relieved 12 or 12 hours should elapse if possible between
the successive applications so that the abrasions of the cuticle may heal & offer some obstacle to the
absorption of the active principle of the fluid. After the blister is formed the most dependent part should be opened
the cicatrix should be maintained to remain & be dressed with simple emollient, & if be desirable to maintain
the disorganization, the skin should be covered if conveniently done & resincerate used. The effects of an issue are
obtained by the use of a virgine ointment or the ointment of Spanish flies as a dressing. Emollient poultices or weak lead water
relieves inflammation in the vesicular surface & the cicatrix of subacute state of lead diluted with equal weight of simple

the small^{er} & smaller dose is a safe stim^{ul} to the digestive organs, & comm^o to be recommend^d to the
h^uman as been often used in drops, a good mode for a minute but. a half 5ss or 5ss or p. v. c.
in solid h^u & in dose a wine glassful several times a day. Must^d is most useful as a relief ac^t. mix^d
with wat^r in the form of cataplasm & appl^d to the skin, & it produces pain & redness, be^{ca}u^{se} it is not
portable after one time's applicⁿ. when a speedy impression is not desired when appl^d to the extremities.
the crust^d p^o should be dilut^d with an equal part of rose meal or beat flour. & looking ap^l it may
cause vesicatⁿ. obtⁿ into ulc^r & men^{str}ophacelus. Caution is partic^uly necessary where the p^o is in
ill^u & pain can aff^{ect} no crit^{ic}um of the suff^{ic}ience of the m^o. In Germany the volatile has been much
used & is capable of produ^cing relief & vesicatⁿ if et^h. 30 in. Alech^d 3j. or 4vi or viij. in 5a in m^o
or olive o^{il} as a relief ac^t & given intern^uly in colic 4ttij being inc^{or}por^d the 3vi is the
the dose being 15ss proves useful.

Capsicum.

corate is very effectual in obstinate indurated to heal it when deep & extensive ulceration occurs from great debility bark or sulfate of quinia should be used with nutritious aliment. In order to prevent strangury, the whole flies are held 15 minutes previous to being put to use. longer & holding injures their vesicant^y while 15 min^{ts} does them no injury & preserves them of their vesicant property.

Cantharis Vittata.

[See Pages 50 & 56.]

Al. Vittata Lin. is like the spanish fly, head dark red, with dark spots on the top. feet black, the elytra or wing cases black with yell. margin & a yell. longitudinal stripe in the centre. thorax black with 3 yell. lines. abdomen & legs of the col. & even with down. inhabits the potato vine, it appears at the end of July & begin^g of August. & is somet^e very abundant. it is found on the plant in the morn^g & even^g but during the heat of the day it descends into the soil. They are collected by being shaken from the plant into hot water & carefully dried them in the sun. natives of Middle & S. states, it may be used for the same purposes & treated in the same manner & given in the same dose as the foreign insect. There are besides several other species which can be equally applied to the same purposes.

Sinapis

Sinapis alba is a small plant, leaves ^{by} tooth & ruff - the ship is so called. The leaves are green. Flowers have yellow petals & green leaflets. The seed is ^{1/2} ribbed & has a long point on beak. Sinapis nigra is a small plant, 3 or 4 ft high with more spread branch. Lower leaves rough upper leaves smooth. Flowers small & yellow. Pods smooth, erect, undrum, contain many seeds & have a short beak. Black mustard seeds are small, round, deep brown & slightly rougher in texture. When entire in powder have a distinct odor in powder & rub with water vinegar, exude a strong pungent odor, sufficient to irritate in some instances the flow of tears. Taste bitter & hot, pungent but permanent. White mustard seeds are much larger, of a yellow color & less pungent. Taste both afford a yellow powder & are known as pepper & is prepared by crush & pound the seeds & sift them. The best is obtained by a 2^d sift. It is often adulterated by wheat flour colored by Vermilion to which red pepper is added to make it still hotter. Where both kinds yield their active properties to water, but in very slight degree to alcohol. The skin of white mustard seeds contains a mucilaginous substance which is extracted by boiling. Both kinds yield upon pressure a fixed oil of a greenish yellow color little smell & of a pleasant taste. The remaining part of the seeds being more pungent than the unpressed seeds. Black mustard contains 2 seeds of *Myrosyne* in the state of myronate of potassium & *Myrosyne* a substance closely analogous to the emulsion of almond oil. By heat & water to black mustard the *Myrosyne* acts as a ferment & determines a decomposition. In the white mustard the myronate forms a volatile oil. Med Prop^s. Mustard is used as a rubefacient & has recently been thus much used in Europe & the seeds are often used with the oil & dependent action the white seeds are for this purpose preferred & are taken in the dose of 4 to 6 drops of a mixture of a Day mixed with glasses previously softened in water & mixed by immersion in hot water. There is a high probability in the black seeds & powder in dose for a cathartic effect & is thus applicable in great proportion of cases as in prison by narcotics. It is also the fact is susceptible & facilitates the act of

CLASS XVII.

RUBEFACIENTS.

General Observations.

Medicines which inflame the skin without vesicating as an ordinary result. The principles of their operation are the same in general as those mentioned under the head of epispastics. But some indications are answered best by one class, others by the other.

As general stimulants, blisters are preferable when a slow and permanent impression is to be produced—the active rubefacients, when a sudden and powerful but fugitive action is requisite. The former are superior to the latter in the power of interrupting morbid associations. On the principle of revulsion, blisters are more useful in local inflammations—rubefacients, in spasm and other forms of nervous irritation. When a very slight but long continued action is desired, the indication is best fulfilled by mild rubefacients. As depletory means these are obviously inferior to blisters, and they cannot be employed to obtain a raw surface. For the mere purpose of producing pain, the powerful rubefacients are even more efficient than blisters.

MUSTARD.—SINAPIS. U.S.

The seeds of two species of *Sinapis*—*S. alba* and *S. nigra*—natives of Europe—cultivated in our gardens. General character of the plants.

Their seeds distinguished by the names of *white* and *black mustard seed*. Size and colour of the two varieties. Colour of the powder. Mode of preparing it.

Chemical composition of the seeds. Mucilage contained in their coating, a fixed oil in the interior part. Among their constituents is a principle, which, in the black mustard is converted into a volatile oil by the reaction of water, in the white into an acrid substance not volatile. The odour and taste are ascribable to these principles.

Effects of mustard on the system. Operation when taken whole. Operation when swallowed bruised or in the form of powder. Internal uses. Employment as a rubefacient. Mode of applying it. Duration of its application. Local effects. Occasional unpleasant results. Cases to which it is especially applicable.

CAYENNE PEPPER.

Before spoken of as an arterial stimulant. Effects as a rubefacient. Modes of applying it. Cases to which it is applicable.

OIL OF TURPENTINE.

Already described. Powerfully rubefacient. Mode of applying it. Peculiar effect on the skins of some individuals. Cases to which it is applicable.

BURGUNDY PITCH.—PIX ABIETIS. U.S.

Product of *Abies communis* (*Pinus Abies*, Linn.), a large evergreen tree, growing in the north of Europe, and commonly called *Norway spruce fir*. Mode of procuring and preparing the pitch.

Form as it is found in the shops—colour—effect of exposure on the colour—consistence—difference in this respect in cold and hot weather—smell—taste—chemical composition—effects of heat—consistence at the temperature of the body.

Properties as a rubefacient. Poisonous effect on the skins of some individuals. Therapeutical uses. Modes of application.

CANADA PITCH.—PIX CANADENSIS. U.S.

Sometimes called *hemlock gum* and *hemlock pitch*. Obtained from *Abies Canadensis* (*Pinus Canadensis*, Linn.), an evergreen indigenous tree, growing in the northern states and Canada. Mode of collecting and preparing the pitch. Colour. In sensible, chemical, and medicinal properties, closely analogous to Burgundy pitch.

SOLUTION OF AMMONIA.—LIQUOR AMMONIÆ. U.S.

Often called *water of ammonia* or *aqua ammoniæ*. Chemical nature. Mode of preparation. Odour. Relation to the oils. Effects as a rubefacient. Modes of application. There is an official preparation under the name of *Linimentum Ammoniaë*, U.S., commonly called *volatile liniment*. Composition of this liniment.

Stronger Solution of Ammonia—*Liquor Ammoniaë Fortior*, U.S. Much stronger than the preceding. Produces powerful rubefaction, speedy vesication, or a caustic effect, according to the duration of its application.

CLASS XVIII.

ESCHAROTICS.

General Observations.

Substances which destroy the life of the part to which they are applied, and produce a slough. They operate either by a direct influence on the vitality of the part, or by a chemical agency. They are employed to form issues, to change the nature of the morbid action in diseased surfaces by destroying the part affected, to remove fungous granulations, and to open abscesses.

Observations on the *actual cautery*. *Iron heated to ignition* may be used to arrest hemorrhages in places which are beyond the reach of a ligature.

Moxa is another form of the actual cautery. Meaning of the term. Materials from which moxa is prepared, and mode of preparation. Use of nitre and bichromate of potassa. Mode of application. Therapeutical uses. Principles of action.

POTASSA. U.S.

Common caustic. Mode of preparation. Shape and size of the pieces—colour—change upon exposure—mode of keeping—impurities.

Used to form issues, to destroy poisoned surfaces, and to open abscesses. Modes of application. Subsequent treatment so as to form an issue. Principles upon which issues act in the cure of disease.

NITRATE OF SILVER.

Lunar caustic. Mode of preparation. Shape of the pieces—size—colour—translucency—change upon exposure—mode of preserving them. Peculiar character as an escharotic. Used chiefly to destroy the surface of diseased ulcers. Particular applications. Mode of application. Effect upon the cuticle. Used in solution as a local stimulant.

ARSENIOUS ACID.—ACIDUM ARSENIOSUM. U.S.

White oxide of arsenic. *White arsenic*. Mode of obtaining it. State, as it is kept in the shops—colour—opacity—nature of the surface—fracture—odour—taste—solubility in water. Danger of mistaking it for magnesia when in powder. Character as an escharotic. Therapeutical applications.

SULPHATE OF COPPER.

A mild escharotic, not much used as such at present. A strong solution containing 20 grains to fʒj. of water is sometimes applied to chancres, and to the cankerous sore mouth of children.

CORROSIVE CHLORIDE OF MERCURY.—HYDRARGYRI CHLORIDUM
CORROSIVUM. U.S.

Bichloride of Mercury. *Corrosive sublimate*. To be spoken of among the preparations of mercury. Referred to here only as an external application. Seldom used as an escharotic. More frequently as a stimulant application. Use in onychia maligna. Its solution applied to ulcers, particularly those of a syphilitic character, to certain cutaneous eruptions, and as an injection in gleet.

DRIED ALUM.—ALUMEN EXSICCATUM. U.S.

Burnt alum. Mode of preparing it. Character as an escharotic. Purposes for which it is used. Mode of applying it.

THE MINERAL ACIDS.

Though powerfully caustic, these are seldom used, in consequence of the inconvenience of applying them in the liquid form. They are sometimes employed to destroy the cuticle hastily, and procure an inflamed surface. Diluted sulphuric and nitric acids are occasionally used as stimulants to old ulcers. These acids are also employed in the form of ointment in cutaneous diseases.

R

agua-distil. ℥ ii
antimonii et Potas. Tartat. ℥ iii

Dissolve well & add

Syrupus Scillae ℥ iv.

Take spoonful 3 times a day.

Trinct. Thebaic. ℥ i.



CLASS XIX.

DEMULCENTS.

General Observations.

Bland, unirritating substances, which form with water a viscid solution. They generally consist of gum, or of a mixture of gummy with saccharine and farinaceous substances.

Demulcents act in two ways. 1. Applied in solution to an irritated or inflamed surface, they protect it against the influence of irritating matters. 2. Mixed with acrid substances, they blunt their acrimony, and render them less irritating to the parts with which they come in contact. Illustrations of these modes of action. Therapeutical applications. Question as to their mode of action in cases in which they cannot come into direct contact with the diseased surface, as in nephritic complaints. Probability that, in such cases, their solution acts as a mere diluent. Substances belonging to this class are useful also as diet for the sick. Used in pharmacy to suspend insoluble substances in water, and to give adhesiveness and consistence to pills and troches.

GUM ARABIC.—ACACIA. U. S.

Product of numerous species of *Acacia*, thorny trees or shrubs growing in Africa and Arabia. Mode of procuring the gum. Places in which it is collected. Places of export. Several varieties are known in commerce. For medical purposes it is sufficient to distinguish two, viz. *Turkey gum* and *Senegal gum*.

Turkey gum. Shape and size of the pieces—colour—cracks or fissures—effect of these on the transparency—great brittleness.

Senegal gum. Shape and size of the pieces—colour—peculiar appearance of the surface—transparency.

General properties—colour of the powder—smell—taste—relations to water and alcohol—effects of exposure upon the solution.

Character as a demulcent. Therapeutical applications. Mucilage for drink made in the proportion of ℥j. of gum to Oj. of water. Pharmaceutical uses.

TRAGACANTH.—TRAGACANTHA. U. S.

Product of several species of *Astragalus*, small, thorny shrubs, growing in Greece and Asia Minor. Mode of collection. Shape of pieces—colour—translucency—difficult pulverization—mode of pulverizing—odour—taste—relations to water. Components chiefly gum and bassorin. Tenacity of its mucilage. Purposes for which it is employed.

SLIPPERY ELM BARK.—ULMUS. U. S.

The inner bark of *Ulmus fulva* or slippery elm, a large indigenous tree. Mode of preparation.

Shape of the pieces—colour—texture—odour—taste—relations to water.

Therapeutical applications. Used in infusion prepared in the proportion of ℥j. to Oj. External use.

FLAXSEED.—LINUM. U. S.

Seeds of *Linum usitatissimum*, or common flax. A fixed oil is contained in the internal parts, and mucilage in the skin. Mode of obtaining the oil. Called *Linseed oil* (*Oleum Lini*, U. S.). Colour, odour, and taste of the oil. Uses.

Mode of extracting the mucilaginous ingredient. Decoction of the seeds improper. The infusion made in the proportion of ℥j. to Oj.

Uses of powdered flaxseed.

LIQUORICE ROOT.—GLYCYRRHIZA. U. S.

LIQUORICE.—EXTRACTUM GLYCYRRHIZÆ. U. S.

Root of *Glycyrrhiza glabra*, an herbaceous, perennial plant, indigenous in the south of Europe. Whence imported.

Shape and size of the root—character of the epidermis—colour externally and internally—colour of the powder—odour—taste—relations to water.

Characteristic principle, a sweet substance called *glycyrrhizin*. Different from sugar.

Uses of the root. Proportion in decoction, $\frac{3}{4}$ j. of the root to Oj. of water. Uses of the powdered root.

Mode of preparing the extract. Place from which it is imported. Shape and size of the pieces—colour—appearance of the fracture—taste—impurities. Mode of refining. Shape and size of the pieces of refined liquorice. Uses.

ICELAND MOSS.—CETRARIA. U. S.

Cetraria Islandica (*Lichen Islandicus*, Linn). Indigenous in the north of Asia, Europe, and America. Size and shape of the plant—consistence—colour—odour—taste—relations to water.

Interesting constituents, a starch-like principle to which it owes its demulcent properties, and a bitter principle. Solubilities of these two principles. Mode of separating the bitter.

Effects on the system. Therapeutical uses. Administered in decoction made by boiling $\frac{3}{4}$ j. of the moss in Oiss. of water to Oj. Given *ad libitum*.

IRISH MOSS.—CHONDRUS. U. S.

Carrageen. *Chondrus crispus* (*Fucus crispus*, Linn.). General character of the plant. Place of its growth. Therapeutical uses. Mode of administration. The decoction made in the proportion of $\frac{3}{4}$ ss. of the moss to Oj. of water.

SAGO. U. S.

Product of *Sagus Rumphii*, or sago palm, indigenous in the East Indies. Obtained from the pith of the trunk. Mode of preparation. Two varieties in the market—common sago and pearl sago.

Shape, size, and colour of the grains of common sago, and of those of pearl sago—taste—relations to water. Consists almost exclusively of starch.

Uses in disease. Mode of preparing it for exhibition. Proportions for the decoction, $\frac{3}{4}$ j. of sago to Oj. of water. Additions.

TAPIOCA. U. S.

Product of *Jatropha Manihot*, a plant of tropical America. Places in which it is cultivated. Two varieties—the sweet and bitter. Difference between them. Tapioca obtained from the root. Mode of preparing it.

Shape and size of the grains—colour—hardness—taste. Uses and mode of exhibition the same as those of sago.

ARROW ROOT.—MARANTA. U. S.

Product of *Maranta arundinacea*, and other species—plants of the West Indies—cultivated in our southern states. Obtained from the root. Mode of preparation.

Form—colour—chemical nature—relations to water. Liability to mustiness. Purposes for which it is used. Mode of preparing it for use. Proportion for solution, a tablespoonful to the pint of water.

Starch of the potato, and from other sources, is often substituted for arrow root.

BARLEY.—HORDEUM. U. S.

Mode of preparing barley for medical use. Commonly called *pearl barley* (*hordeum perlatum*) when prepared.

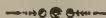
Shape and size of the grains—colour—chemical constitution—relations to water—liability to mustiness. Medical uses. Form of administration. *Decoction of barley* (*Decoctum Hordei*, U. S.), commonly called *barley water*. Mode of preparation. Occasional additions.

CLASS XX.

EMOLLIENTS.

General Observations.

Substances capable of retaining moisture, and forming a soft mass, without irritating properties. They serve only as vehicles of warmth and moisture to the skin. They are useful in relieving the tension of inflamed parts, and in promoting suppuration. The individuals of the class are described under other heads.



CLASS XXI.

DILUENTS.

General Observations.

Mild liquids, which serve to dilute the contents of the stomach and bowels, to fill the blood-vessels, and to increase and at the same time dilute the secretions. The only liquid which can be used for this purpose is water. Additions are generally made in order to give it flavour, to render it somewhat nutritive, or to answer some indication independent of mere dilution. The advantages resulting from diluent drinks are, that they render the fluids with which they mix in all parts of the body less irritating, and thus absolutely relieve inflammatory affections. They may also prove useful, in some instances, by restoring a due degree of fluidity, and consequently of mobility, to the blood and secretions, rendered thick and viscid by disease.

CLASS XXII.

Medicines belonging to the first great Division, not capable of being arranged in any of the preceding Classes.

ERGOT.—ERGOTA. U.S.

Sometimes called *spurred rye* or *Secale cornutum*. Product of *Secale cereale*, or common rye. Part of the plant. Question as to its origin.

Size and shape of the grains—longitudinal furrows—colour, external and internal—odour—taste—relations to water and alcohol.

Effects on the system. Consequences of its free and long continued use. Therapeutical applications. Given in powder or infusion. Dose of the powder, from 10 to 20 grains—of the infusion prepared with one drachm of ergot to four fluidounces of water, about fʒj.—of the wine (*Vinum Ergotæ*, U.S.), fʒj. to fʒiij.

NUX VOMICA. U.S.

Seeds of *Strychnos Nux Vomica*, a tree growing in the East Indies. Character of the fruit.

Shape and size of the seeds—character of the surface—structure—character of the internal part—colour, external and internal—hardness—difficulty of pulverization—odour—taste—relations to water and alcohol.

Active ingredients, two alkaline principles called *strychnia* and *brucia*. The latter not used because similar in properties to strychnia, and yet much weaker.

Strychnia. Form—colour—odour—taste—effects of heat—solubility in water and alcohol. Obtained for use from the *bean of St. Ignatius*.

Effects on the system. Poisonous action. Therapeutical applications. Dose of the powder, 5 grains—of the alcoholic extract, from half a grain to 2 grains—of strychnia, from one-twelfth to one-sixth of a grain. External use of strychnia. Mode of applying it.

ARSENIC.—ARSENICUM.

Probably inert in the metallic state. Exceedingly powerful in combination. The arsenical preparations, when given in small doses, produce at first little obvious effect; but after a few days cedematous swelling appears about the face, and if the medicine is persevered in, nausea occurs, with tremors, muscular debility, diminished force of the circulation, and other indications of an enfeebled condition of the vital powers. Their action appears to be compounded of an irritative operation upon the stomach, and of an operation entirely peculiar to themselves upon the system at large. They are evidently absorbed; as they produce the same effects when applied externally as when taken into the stomach. In large quantities they are powerfully poisonous. The symptoms produced are those of inflammation or disorganization of the mucous membrane of the stomach and bowels, complicated with great general prostration. Symptoms enumerated. Treatment of the poisonous effects of arsenic. Use of the *hydrated peroxide of iron* as an antidote. Mode of preparing this oxide.

Arsenic is contra-indicated in all cases of irritated or inflamed stomach, and in states of disease attended with great prostration of the vital powers. Useful in intermittent diseases, in which it may be employed when circumstances forbid the use of quinia, or this medicine has been used ineffectually. Employed also in cutaneous affections, particularly in those of a scaly character, and in secondary syphilis especially when attended with nodes.

The only preparations recognised by the U. S. Pharmacopœia are the *Arsenious acid* and *Solution of Arsenite of Potassa*. The sensible and chemical properties of the acid have been already treated of. Its dose is one-twelfth of a grain, made into pill with the crumb of bread, and taken three times a day.

Solution of Arsenite of Potassa—Liquor Potassæ Arsenitis, U.S.—commonly called *Fowler's solution*. Mode of preparation—colour—taste. Dose, 10 drops, two or three times a day.

MERCURY.—HYDRARGYRUM. U.S.

The action of mercury is quite peculiar. In very small doses, it may be given so as to produce no obvious effects upon the system, and yet to exert a powerful influence in dis-

Ergota.

Ergot is found in the spike or ear of the rye, project^{ing} out of the back from 3 to 1 1/2 inches. In some spikes the place of the seeds is wholly occupied by the ergot, again only 2 or 3 spikes are found. It is more energetic collected before than after it is ripe & is best about 6 days after its formation. It was formerly considered to be a disease of the seed arising from excess of heat & moist. or the agency of an insect. DeCandolle considered it a fungus growth occupying the place of the seed. Seriville considered that ergot was the seed disease & prevented by a parasitic fungus attaching to it from its very beginning. This last view is confirmed by the observation of M^r Buchett, though the character of the parasitic plant is different than that noticed by DeCandolle. Prop^s It is in solid, brittle yet somewhat flexible grains 3/4 of an inch to 1 1/2 inches long from 1/2 to 3 lines thick, cylindrical or obscurely triangl^r. taper^{ing} towards each end obtuse at the extremities, curved like the spurs of a cock, marked with 10 or 12 longitudinal furrows, irregl^r crack^s; col violet brown & somewhat glaucous ext^{er}ly, yell^{ish} white or violet white within, in mass smell^y like putrid fish, & taste at 1st scarcely perceptible & afterw^d disagreeable & slightly acrid. Under the microscope the surf^{ce} appears ± covered with sporidia, the interior is composed of minute round cells containing particles of oil, yields its virtues to wat^r & to Alcohol. The infus^{ed} or decoct^{ed} is clear & color^{less} with acid reaction. It is liable to deteriorate by long keep^{ing} & to be attacked by a small worm. It should be kept in tight bottles & renewed every one or two years.

Med^{ical} Prop^s In small doses it produces no effect in the syst^{em} of the male, but in the female it has a strong tendency to the uterus & increases its contractile prop^{erty}. A dose of 3ss to ʒij. occasions muscular tremor & in larger quantities produces weight & pain in the head, giddiness, dilat^{ion} of pupils, delir^{ium} & even stupor, & reduces the frequency of the pulse & weak^{ens} its force. Its long continu^{ed} use is highly dangerous. Scab^{ies} & decub^{iti} & puerper^{al} fevers have resulted in Europe from the use of degenerated grain as bread stuffs. produc^{es} dry gangrene, typhus fever, & int^{er} nerv^{ous} syst^{em} with convulsions. To produce immediate poisonous effects very large doses would be required, a man tak^{ing} ʒij. to ʒiij. Drachms with very serious results. It is particularly useful in long & tedious labours, great care should be taken not to give it until full dilat^{ion} of the uterus, its action being that of a steady & permanent nature there is danger that the foetus would be destroyed by pressure. It may also be given to expel a foetus ascertained to be already dead, when greater exhaustion or danger^{ous} constitutional irritab^{ility} demands its use, also to expel the placenta to restrain inordinate haemorrh^{age} after delivery & to hasten the discharge of the foetus in protracted abortion, in women subject to danger^{ous} haemorrh^{age} a dose given before delivery proves very useful. Also for the expulsion of coagula of blood, polyph^{ic} & hydat^{id} id^{ent} from the uterine cavity. also in uterine hemorrhages & menorrhagia unconnected with pregnancy. Also in haemorrhage from the lungs. It probably acts by produc^{ing} contract^{ion} of the capillaries & by direct action or par^{al}ysis of the nerves. In this way we might explain dry gangrene & result^{ing} from its use. It has been used also in scorbut^{us}, leucorrh^{oea}, & isen^{teric} work, chronic dysent^{ery}, paraplegia, paralysis of bladder & intermittent fever. Dose to a woman ʒiij. or gr xv to xx every 20 min^{utes} till it produces effect or till ʒiij. has been taken ext^{er}ly in haemorrh^{age} it has been found to check ven^{ous} & pulsing arteries. Vinum Ergotae brand^{ed} ergot ʒij. Sherris wine ʒj. macerate 14 days with occasional agitation express filter through paper. Dose for a woman in labour ʒiij to ʒiij. The active ppl of Ergot is Ergotine.

Pulverizat. of musk Vanica is effect^d by 1st rasp. & the ^{nut} slightly heat^d the raspings & then reduc^d these to powder in a iron mortar.

Nux Vomica.

The fruit is a small berry, pale to slaty green, or grey, covered with a smooth, thin, orange-brown pericarpium. The seeds are about 1/2 inch in diam. 2 or 3 lines thick. The seeds are circular 3/4 of an inch in diam. 2 or 3 lines thick. They are thickly covered with fine, silky, shiny, ash-colored or yellowish gray hairs which are attached to a thin fragile coat which closely invests the interior kernel. This is greenish white & semi-transparent & somewhat opaque; hard, horny, & of difficult pulverization. The powder is yellowish gray having a faint sweetish odor. The seeds are double, having an acid bitter taste which is stronger in the kernel than in the invest^{ed} membrane. Wat. & better yet dilut^{ed} Aleoh. extract the virtues. Strychnia as a gal^l found in shops. It is a grayish white powder when rapidly cryst. from its alcoholic solutⁿ. It has the form of a white granulat^{ed} powder when slowly cryst. that of elongat^{ed} octohedra or quadrilateral prisms with quadrilateral terminat^{ion}, permanent in the air, inodorous, excessively bitter. With a metallic after-taste, it is so intensely bitter that 1 part gives a sensible taste to 600000 parts Wat. It melts like resin, is not volatil^{ized}, is decomposed at a comparatively low temperature. sol. in 6667 parts Wat at 50° in 2000 at 212°. sol in alcoh^{ol} & in the volatile & sparingly sol. in absolute alcoh^{ol} & ether. It is obtain^{ed} from nux vomica treat^{ed} with lime, muriatic ac. alkali dil^{ut} sol. p. ac. solⁿ of ammonia, purif^{ed} animal charcoal & wat^r & also from the bean of S. Ignatius, the seed of another species of strychnos this latter yield^s a much larger proportion of the pure alkali than the nux vomica. It is so bitter as the same as those of nux vomica, it acts most powerfully when mixed into the veins & applied to the forehead. In over dose it is a violent poison. Bornea has about 1/2 of the strength of strychnia its effects are the same. Med Prop^s of Nux Vom^a. In small doses frequently repeat^{ed} it is tonic & is said to be diuretic & occasionally diaphoretic & laxative. In large doses it produces a feel^{ing} of weight & numbness with the numbness in the limbs & some rigidity on attempt^{ed} motion. occasional starts & spasms occur as if caused by an electric shock. These spasms are brought on by some excit^{ed} cause, as a blow or an attempt to move but if the doses are continued the spasms occur with extraneous agency & are somewhat frequent & violent. There is giddiness of the muscles, a sense of heat in the skin, emetic rick of the throat & abdomen, tightness of the chest, retention of urine &c. Its action is particularly directed to the nerves of motion through the spinal marrow & continued on further use to the brain produce pain in the head, vertigo & dimness of vision. Incontinence, tingling &c are also experienced on the surf. In over dose it is a poison. produc^{es} death by suspend^{ed} respirat^{ion}, result^{ing} from spasmodic contract^{ion} of the muscles concern^{ing} in the process. It has been recommended as an antidote to the plague, colica pictonum, worms, mania, rheumatism, hydrophobia. It is used in paralytic affect^{ions}. It is a standard remedy in palsy. A singular fact is that the med. acts on the paralytic part before exhibit^{ing} its effect elsewhere. It should never be given in cases dependent on inflamat^{ory} or organic lesion of the brain or spinal marrow. It has cured palsy of the bladder, incontinence of urine from paralysis of the sphincter, useful also in perhaps a variety of neuralgia, the alcoh^{ol} extract is better than the powd^r. Strycⁿ is better than either. It is applic^{ed} to a blister surf near the temples in the quant^{ity} of 1/2 to 1 gr. more & even augment^{ed} grad^{ually} the quant^{ity} best in pill. Dose of Bornea 1 gr. 2 or 3 times a day. Tonic Dose of Bornea 1/2 gr. frequently repeat^{ed}.

Arsenicum.

Metallic arsenic is not offic. Arsenious ac. is one of its most imp^t comp^s & as found in commerce is in masses sub-
 ilik^e a vitreous fract. exteriorly of a milky white col^r & interiorly perfectly transparent. As^t sublim^d it is wholly transparent.
 is found in shops in fine white powder & often adulterat^d in this state with chalk, or sulph^r of lime. This is easily detect^d by expos^{ing}
 the powder to a heat suffic^t to scap^t the acid these impurities are man^y behind completely sol^d in boil^d wat. a faint sweet taste
 in strong hot solutⁿ. it has an austere taste resembl^g sulph^r of zinc. It is odorless the vapours of arsenic smell like garlic.
 It consists of 2 equiv^s arsenic + 3. for oxyg. is therefore a sesquioxide. Med^{ical} Prop^s. Internally the actⁿ of the arsenic prep^s is
 alteratⁿ & febrifuge. external^y gnl^y violent^y irritⁿ & a curatⁿ pecul^y applic^{able} to the treat^{mt} of periodic diseases. The doses should be
 1st small & grad^{ly} increas^d carefully watch^{ing} its operatⁿ. immediately suspend when its specific effects are produc^d which are oedema of the
 face & eyelids, stiffness in these parts, itching of the skin, tenderness of mouth, loss of appetite, uneasiness & sickness of stom^{ach}.
 The pecul^y swell^{ing} which it produces is term^d oedema arsenicalis & somet^{imes} it salivates & the hair & nails fall off. Arsenic taken
 internal^y or appl^d external^y is absorb^d by the syst^m. the proof of which is that after death result^{ing} from an external applicatⁿ the stom^{ach}
 is found inflam^d precisely as when the med^{icine} has been swallow^d in overdose. Internally or external^y it is an energ^{ic} poison.
 It produces an austere taste, furred mouth, frequent ptialism, continual hawk^{ing}, convulsⁿ of pharynx & oesophagus, pain to
 the teeth on edge. hiccup, nausea, anxiety, freq^{uent} vomit^{ing}. burn^{ing} pain at the precord^{ia} inflamatⁿ of the lips, tongue, palate thro^{at}
 & oesophagus, irritable stom^{ach}, so as not to be able to support the blandest drinks vomit^{ing} of mucus somet^{imes} brown again inter^{mit}
 with black & humil^y fetid stools, pulse small irreg^{ular} freq^{uent} & concentrat^d but occasionally slow & unequal, palpitatⁿ sync^{op}
 operant^{ing} cold thirst, burn^{ing} heat over the whole body or a sensatⁿ of icy coldness, difficult respiratⁿ, cold sweats scanty, &
 & bloody urine, change in countenance, a livid circle round the eyelids, swell^{ing} & itch^{ing} of the body livid spots over the
 surf^{ace} & occas^{ionally} a milisary erupt^{ion} ^{strong & last} prostratⁿ of feel^{ing} especially in the feet & hands delir^{ium}, convulsⁿ, with insupportable
 pruritus fall^{ing} off of hair, nails & cuticle, inflamatⁿ & burn^{ing} pain in the urino genital &c &c death. All of these sym^{ptoms}
 & signs are accl^y observ^{ed} in one patient & in some they are all want^{ing} death taking place with pain or prom^{ptly} in sleep.
 After death the morbid appear^{ance} is various somet^{imes} no vestige of lesion can be discover^d but gnl^y the mouth, stom^{ach} &
 intest^{ines} are inflam^d, the stom^{ach} & duodenum exhibit spots resembl^{ing} eschars & perforatⁿ of all their coats, the villous
 coat of the stom^{ach} is in a manner destroy^{ed} being reduc^d to a redd^{ish} brown pulp. Treat^{mt} of pois^{on} Doses. Dislodge
 the poison by tickling the throat & the administratⁿ of an emetic of sulph^r of copper or sulph^r of zinc. & the stom^{ach}
 pump & administer 6 mulct^{ing} drinks as milk, white of eggs & wat, or flour & wat. which increase vomit^{ing} &
 envelope the poison ^{Subsequent treat^{mt} the same as in violent gastritis} soon as it is ready administer the hydrat^d sesquioxide. (peroxide) of iron in the maist or gall state
 in doses to an adult of a table spoonful & to a child a dessert spoonful. every 5 or 10 minutes till the urgent sym^{ptoms}
 are relieved. Twelve times the am^t of poison swallow^d is supposed to suffice for counteractⁿ the poison but prudence
 requires a much larger proportⁿ. say 20 or 30 times. The sooner it is administ^{ered} the better. This antidote acts by
 transfor^{ming} a part of its oxyg. to the acid & form^{ing} with it an inert subarseniate of protox of iron (4FeO + As²O⁵). Prep^{aration}
Terri Oxidum Hydratum. Sulph^r of iron 3iv. Sulph^r ac. f 5ijss. Nitric ac. f 5ij or Q.S. Soluk^{ing} of Ammonia Q.S. Wat^{er} Qj
 Dissolve the sulph^r in the wat^{er} add the sulph^r ac. & boil, then add the nitric ac in small port^{ions} till 1 or 2 min^{utes} after each addition till



The ac. ceases to produce a dark cal. filter cool & add solut. of Ammonia in excess, stir briskly, wash the precipit. with wat till the wash ceases to yield a precipit. with chloride of barium. keep it in close bottle with sufficient wat to cover it. It is a soft, moist, red^h brn may mix the best substitute to arsenic. Remedial Applicat. It has been used in a great variety of diseases but ppl^d in scirrhus & cancer, especial^y cancer of lip; anoma^lous ulcers, inter mitt^l fever, chronic rheumat^{ism}, attend^d with pain in the bones, in nodes & firm swell^g of the small joints of the hands, frontal neuralgia, hemiparesis & severe headache, in recent cancer of uterus & in menorrhagia, in intractable uterine attend^d with pain & bear^d down in the erect posture in the last complaints it was given in pill in doses of gr^{ss} to 3 times a day for this dose it produces no simple effects & can be continued for 3 or 4 months. Arsenious ac. has been much extol^d in lepra, its external applicatⁿ has been ppl^d restrict^d to cancer & anoma^l & malignant ulcers & especial^y those known as soli me tangeres: it is used in lupus & ill look^g sores of face, lips & tongue. It is the ppl ingredient in empirical remedies for cure of cancer. A common formula is to mix 1 gr of the ac with 10 gr sugar & beat the mixt. thoroughly with crumb of bread & divide the mass in 10 pills.

Soliquor Potassae Arsenitis. Arsenious ac. in small fragm^{ts}. Pure carb^o of potassa; \bar{a} Ixij gr. Dist^d Wat q^s Comp^d Spirit of lavender \bar{f} 5 ss. boil the ac. with the carb^o with wat Dist^d \bar{f} 3 xij. in a glass vessel till the ac. is nearly dissolved so the solut. when cold add the spirit of Lav^{er} & afterw^d Dist^d Wat suffic^t to make it exactly fill a pint measure. It is a transparently having the col. taste & smell of spirit of lavender. Its uses are the same as other arsenical preparat^{ns} & is especially given in intermitt^{ts}. It is valuable in those cases for children who cannot be induced to take bark or even Sulf^o of quinia. \bar{f} 5 with wat \bar{f} 3 xij in dose of 6 grt every 4 hours and mix^d It cures a violent tertian in a child of weeks of age. It is partic^uly applicable to lepra & other intractable cutaneous diseases, nodes, chorea, periodic headache & dissolved in the proportion of \bar{f} 3 j to wat \bar{f} 3 j. is a good topical applicatⁿ to foul ulcers occasioned by the indiscreet use of mercury.

Hydrargyrum.

Mercury uncombined is deemed inert, in a state of combinatⁿ it acts as a peculiar & universal stimult^{ant} in a state of minute division it produces its peculiar effects which proves that the condition of minute div^{is}ion is favorable to its entering into combinatⁿ in the stomach. Its combinat^{ns} exhibit a tangled prop^os & effects which belong to the whole as a class while each prep^o has its peculiar act.

* If this prep^o is not at hand a substitute may be had by simply precipitat^g the magma from the Solutⁿ ferric iodide by a solutⁿ of Ammonia. then thoroughly wash^d & filtering in the wat. A similar prep^o may be had by treat^g the solⁿ of Sulfate of iron by nitric ac. & wash^d & filter^d as before.

Of the ~~whole~~ range of ~~near~~ ^{very} much ~~nothing~~, except that it acts ~~pro~~ ^{pro} ~~trough~~ ^{trough} ~~the~~ ^{the} ~~circulation~~ ^{the} ~~that~~ ^{it} possesses a peculiar ~~local~~ ^{local} ~~power~~ ^{power} ~~in~~ ⁱⁿ the vital function ~~when~~ ^{when} ~~it~~ ^{it} is ~~used~~ ^{used} ~~to~~ ^{to} ~~secret~~ ^{secret} ~~its~~ ^{its} ~~secret~~ ^{secret} ~~by~~ ^{by} ~~substituting~~ ^{substituting} ~~it~~ ^{it} ~~on~~ ^{on} ~~in~~ ⁱⁿ ~~their~~ ^{their} ~~stead~~ ^{stead}. Its power is ~~connected~~ ^{connected} ~~with~~ ^{with} ~~the~~ ^{the} ~~action~~ ^{action} of any other vital phenomenon than the removal of the ~~excess~~ ^{excess} ~~which~~ ^{which} ~~against~~ ^{against} ~~its~~ ^{its} ~~own~~ ^{own} ~~objects~~ ^{objects} ~~icate~~ ^{icate} the agency of a potent stimulus. These effects being a quicken-circulat, freque, jerk-pulse, increased secretory functⁿ particularly of the salivary glands & liver &c & in short by a ~~and~~ ^{and} excitement of the organic ~~of~~ ^{of} ~~act~~ ^{act} the syst. The 1st sympt^s of salivat are a coppery taste in the mouth, slight soreness of gums, an implem^t ~~sensat~~ ^{sensat} in the sockets of the teeth when the jaws are firmly closed shortly the gums begin to swell a line of whitish matter is seen along their edges, the breath is infect^d with the mercurial fetor & the saliva begins to flow. at a later period the gums retire from the necks of the teeth which are loosened & fall out, the f^{ru}ids of the mouth & throat are swoin ^(hence dangerous hemorrhage may result) or even ulcerated hectic comes on as the patient finally sinks from cerebral & renal irritatⁿ. The mouth must be treat^d by astringents, when there is great protract. use Tonics & Stimul^{ts}.

ease. In this mode of action it is said to be *alterative*. More freely employed, it makes a very sensible impression. The most evident symptoms are those ranked together under the name of salivation or ptyalism. Description of these symptoms. At the same time, it gives rise to an excitement of the circulation, evinced by a peculiar quick and jerking pulse, increases nervous susceptibility, augments most of the secretions, and invigorates absorption. Probably other unperceived changes take place in the system, the actions of which appear for a time to be completely revolutionized. The effects produced by mercury gradually subside, and, unless very severe, usually leave the general health unimpaired.

Therapeutical applications of mercury considered, *first*, in reference to its general influence upon the system as indicated by its action upon the gums; *secondly*, in reference to its alterative influence. The effects of mercury connected with its sialogogue operation, upon which curative indications are founded, may be included under the following heads:

1. Excitement of the secretory functions. Circumstances under which it may be useful in reference to this effect. Whenever the secretions are arrested, and no contra-indicating circumstances exist.

2. Altered condition of the capillary vessels. It is probably by some influence over these vessels that mercury proves useful in most chronic inflammations. It appears to be peculiarly adapted to inflammations attending a typhoid state of the system. Its use in inflammation may possibly be in part owing to some influence upon the blood.

3. Peculiar action upon the liver. Upon this organ and its appendages mercury exerts an influence greater, perhaps, than upon any other part of the system. Peculiarly advantageous in hepatic inflammations and congestions, and in all the numerous complaints which have their origin or support in deranged conditions of this organ.

4. Excitement of the absorbents. Hence its use in dropsical complaints, and in chronic tumefactions, though it operates in these affections also upon other principles.

5. Local inflammation of the mouth and fauces. This is no doubt sometimes useful by its revulsive influence. But it is seldom advisable to employ mercury with a view to this effect alone; as there are other more convenient and safer modes of producing revulsion.

6. General revolutionizing action. There are some complaints in which the curative influence of mercury admits of explanation, in the present state of our knowledge, only by resorting to the supposition that it produces general effects incompatible with the deranged condition in which the disease consists. One of these complaints is syphilis. Observations in relation to the prejudice against its use in this affection. Much of this prejudice is ascribable to its abuse. Great care is requisite to restrain its action within due limits, and to persevere with it sufficiently long. The poisonous effects of lead upon the system constitute another disease in the cure of which mercury may be said to act by its revolutionizing influence. Further remarks in relation to its therapeutical application upon this principle.

The best modes of bringing the system under the mercurial influence next considered. The belief stated that it acts through the medium of absorption.

In general, when the object is to produce a gentle ptyalism, *calomel* or the *blue pill* may be given, the former in the dose of half a grain, or a grain, the latter in that of 3 or 5 grains, morning, noon, and night. Any purgative effect is to be counteracted by opium. In cases of irritable stomach, the dose may be reduced, and if necessary given more frequently. If the medicine cannot be taken by the stomach, it will be necessary to employ it externally. For this purpose the mercurial ointment may be resorted to. This is also sometimes useful as an addition to internal means, particularly where the disease exists in the course of the external absorbents. Places to which the ointment is applied, and mode of application. It is sometimes necessary to produce the mercurial influence very speedily. In such cases the medicine must be introduced by every avenue. The doses are to be augmented, external frictions employed, and the ointment applied to blistered surfaces. Sometimes fumigation may be advantageously employed.

Great difference in the susceptibility of different persons to the action of mercury noticed. While in some instances it is almost impossible to affect the mouth, in others excessive salivation is induced by small quantities of the medicine. Different diseases are attended with a difference in this susceptibility. Sometimes the medicine accumulates in the system, and after having been given for some time with no apparent effect, breaks out at length with an overwhelming force. Practical cautions founded on these facts. A good rule is always to administer mercury with great caution, unless the necessity of the case demands its speedy action. In the great majority of cases, it is sufficient to produce the slightest effect upon the gums, and to give the medicine so as to sustain this effect.

Description of the mercurial sore mouth in its different stages and degrees of violence. Dangers of excessive salivation. Condition of mouth sometimes left behind after its subsidence. Treatment of excessive salivation.

Poisonous action of mercury on the constitution in some individuals. Attended with great prostration. Generally observed in hospitals. Treatment.

Occasionally mercury produces excessive and exhausting sweats, sometimes a peculiar eruptive affection. Treatment under these circumstances.

Alterative use of mercury next considered, viz. its use in quantities insufficient to produce any obvious effects on the system. This employment of mercury is important. It is especially advantageous in functional complaints of the digestive viscera, and more particularly when the liver is involved. Remarks upon the colour and quantity of the fæces as an indication of the state of the hepatic function. The alterative use of mercury is called for when the stools are white or clay coloured, or very dry and scanty, indicating a deficient secretion of bile—when they are very copious, liquid, and of a bilious colour, as in bilious diarrhœa and cholera morbus—and when they are dark coloured or black, and of a tarry consistence, as in melœna. Methods of administering mercury with a view to its alterative action. In chronic cases with constipation, a blue pill may be given, or from half a grain to a grain of calomel, every night or every other night, followed in the morning, if the bowels be confined, by some gentle aperient. In acute cases, with irritable stomach and bowels, one-sixth of a grain of calomel or half a grain of the blue pill may be given every half hour, hour, or two hours, according to circumstances, and suspended when the requisite quantity has been taken—care being observed to avoid any effect upon the gums. A little opium may sometimes be advantageously added.

The preparations of mercury considered in six divisions, 1. metallic mercury, 2. oxides, 3. chlorides, 4. iodides, 5. salts, and 6. sulphurets.

1. Metallic Mercury.

Not given internally in the liquid form. Always in a state of minute division. Mode of effecting this division. Change effected in the metal by trituration. Partial oxidation produced.

1. *Mercurial Ointment*—*Unguentum Hydrargyri, U.S.* Constituents. Mode of preparation. Colour. Effects of time upon the colour. Purposes for which it is employed. Modes of application.

2. *Mercurial Plaster*—*Emplastrum Hydrargyri, U.S.* Constituents, mode of preparation and uses.

3. *Mercurial Pills*—*Pilula Hydrargyri, U.S.*—commonly called *blue pills*. Constituents. Mode of preparation. Colour of the mass. Effects of age. Kept in mass or made into pills. In the former state called technically *Massa Pilularum Hydrargyri*. Weight of the official pill 3 grains, containing 1 grain of mercury. Relative virtues of this preparation. Dose, 1 pill three times a day as a sialagogue—1 every night or every other night as an alterative. The mass is sometimes advantageously given in emulsion.

4. *Mercury with Chalk*—*Hydrargyrum cum Creta, U.S.* Constituents. Mode of preparation. Therapeutical use. Dose, from 5 to 20 grains twice daily.

2. Oxides.

1. *Black Oxide of Mercury*—*Hydrargyri Oxidum Nigrum, U.S.* Mode of preparation. Chemical nature. Form and colour. Effects of time. Dose, from 1 to 3 grains, two or three times a day.

2. *Red Oxide of Mercury*—*Hydrargyri Oxidum Rubrum, U.S.*—commonly called *red precipitate*. Mode of preparation. Chemical nature. Form—colour—solubility in water. Used externally as an escharotic and stimulant. Complaints in which it is employed. Modes of application. There is an official ointment called *Unguentum Hydrargyri Oxidi Rubri*. Much used.

3. Chlorides.

1. *Mild Chloride of Mercury*—*Hydrargyri Chloridum Mite, U.S.*—commonly called *calomel*—sometimes, but erroneously, *submuriate of mercury*. Chemically it is the *protochloride of mercury*. Mode of preparation. Impurity. Mode of purifying it. Form—specific gravity—colour—taste—insolubility. Incompatibles. Dose, from half a grain to a grain, three times a day. *Howard's calomel*. Relative value of calomel as a mercurial.

2. *Corrosive Chloride of Mercury*—*Hydrargyri Chloridum Corrosivum, U.S.*—commonly called *corrosive sublimate*. Chemically it is the *bichloride of mercury*. Mode of preparation. State as first obtained. Powdered for use. Colour—taste—solubility in water and alcohol. Incompatibles. Character as a sialagogue. Dangerous effects in overdoses. A corrosive poison. Therapeutical application. Dose, from one-eighth to one-quarter of a grain, three or four times a day. Given in pill or solution.

4. Iodides.

1. *Iodide of Mercury*—*Hydrargyri Iodidum, U.S.*—chemically, *protiodide of mercury*. Mode of preparation. Form—colour—insolubility—effects of light. Character as a mercurial. Therapeutical application. Dose, half a grain or a grain, two or three times daily. An ointment official.

Unguent^m Hydrarg^u. Mercury 6ij. Suet 3xxij. Suet 3j. rub the mercury with the suet & a small part of lead till the globules disappear, add the remain^d lead & mix. color dirty gray blue black. long kept it becomes black it is applied

it is rubbed on the inner sides of the legs or arms.

Emplast^m Hydrarg^u. Mercury 3vj. Olive oil, Resin ā ā. 3ij Lead Plaster 10j. Melt the oil & Resin together & when they have become cool add the mercury & rub till the globules disappear then grad^{ly} add the lead plask. previously melt^d & mix the whole together. It produces the local effects of mere^u. upon venereal bubos, nodes & other chronic humefact^s of the bones or soft parts depend^t on syphilit^c taint. in which cases it somet^e acts as a powerful discutient. it is also applied to the side in chronic hepatitis or splenitis for habits particularly suscept^{ble} to mere^u. it somet^e affects the gums. The emplastrum de Vigocum Mercurio of the French Codex is applied to the face in small^{box} for the 3^d day from the appear^{ce} of the erupt^o prevents pitting & checks the erupt^o & reliev^e the gen^l sympt^s in proport to the dimint of the local effect. other mercurial prep^s as the Ung^m Hyg^u of the U.S. produce the same effect, though the most successful results have been obt^d and from the form in preparation.

Pilule Hydrargyri. Mercury 3j. Confect. of Roses 3jss. Siquorce root in powder 3ss. Rub the Merc^u with the Confect till the globules disappear, add the liquorce beat the whole into a mass, divide into 48 pills. col dark slate, by time it becomes ± oxid^d & assum^t & olive & even a red^d taint. Much of that used in the U.S. is import from England. They are among the mildest prep^s of mere^u. act less upon the bowels while they exercise their peculiar effect upon the syph^l with less gen^l irritat^o. they are much used to produce the dialagogue & alterative effects. Mercury. I should it I think the bowels add a small part of op^m to it or give it in doses of $\frac{1}{2}$ to 1 gr every 1 or 2 hours in the day. If given as an alterat^o & the bowels should not be open the follow^g morn^g follow it by a small dose of some laxative medicine.

Liquor Iodini Compositus. Iodine 3vj. potash of potas^m 3iss. Dist^d Wat. Oj. Dissolve the iodine & potash in the wat.
Dose 6gt. = gr^{ss} & iodine given in 4 tables spoonfuls of sweet wat. This preparation corresponds with Lugol's concentrated
slut of iodine in iodide of potas^m.

Liquor Hydriodatis Arsenici et Hydragyri or Liquor Hydragyri et Arsenici F. R. T. Triturate 6.0 gr. finely levigat.
arsenic 14.82 gr. Mercury + 49 gr iodine with Alcohol £3j. till the mass becomes dry & from deep brown
turns a pale red. Add dist^d wat £3viij. Triturate a few min^t. Transfer the whole to a flask, add hydriodic ac 3ss
prep^d by the oxidiz^g of 2gr of iodine, boil a few moments, when the color is color if it should measure less
than £3viij. Add suffic^t dist^d wat to fill exact into that measure, filter. Prop^s pale yell. slightly st^y pt^y taste
incompat^{ib} with laudanum & the salt^g muricate & acet^g of morphia. Med Prop^s a good alterat^{iv} in syngo
psois, impetigo, lepra, pityriasis, lupus, psoriasis & scaly venereal eruptions. When it is used causes
derangement of stomach & giddiness & confus^g of mind, Discontinue its use & administer a purgative.
resume it after 10 days to 3 weeks in smaller dose. It is somewhat ex^{tr} in the above & is used with
with an equal bulk of wat. in conjunction with its internal use. Dose 2^{ss} to 3^{ss} 4 times a day to create
salivat. This prep is not offic^l but is well worth the attent^g of pract^l. It originates with Dr. Brown of Dub^l.
It is prep^d by giving 1 dist^d Wat. The numerous preparat^g of iodine mentioned under the title Iodine,
lead more to be a \pm superfluous from the fact that the same effects may be obtained from a single
active prep^d of the infus^g of the metals or subst^g with which these iodides are made.
These iodides are also to be decomposit^g whereby their entire effect is lost or at least
is greatly mort^g.

Iodine Bath. Contains 2 to 4 ℥ iodine with double that amount of iodide of potas^m. Dissolve in wat
in a wood^d bath tub, use. W. K. Cong^s to very 3gr iodine for adults & $\frac{1}{2}$ the quant. but rise in in the
same proportional quant. of wat for children (before introduce^g the med in the bath dissolve in Wat. 10ss.)
A good remedy the skin of the skin allow^g the product of a coarse qual^l of iodine into the circula
tion with deriv^g the digestive funct^g. They are given 3 or 4 in a week, produce a tubercle effect & occasionally
the skin peels off from the arms & legs. The tinct. arsen^g used has been used in cutaneous scrofula
or psoriasis etc. but it is used should be cautiously. Lugol's iodine caustic, used to stimulate or destroy soft or
fungous granulat^g in noli me tangere, is compos^d of iodine & iodide of potas^m aa 3j. dissolved in dist^d wat 3ij.
Iodine & pot^m are often usefully combin^d in treat^g of scrofulous ulcerat^g form into an oint^{mt} with lard &
the same Liquor Iodini. Iodine gr xxx. Alcohol 1℥ xx. Lard 3j. mix the iodine with the lard, then with the lard
till thoroughly mixed. Use^d in scrofulous, scrofulous, & other chronic tumefact^g. After the disappearance
of inflammation enlarge tumors it is benefic^l. It is not used even by means of a cancer air & nail
in the case of Carcinoma, a cure in 2 mth the tumor does change by keep^g long use & causes a similar
cure. Liquor Iodini Compositus. Iodine 3ss. Iodide of potas^m 3j. Alcohol £3 and 3ij. rub the iodide of pot^m with
the Alcohol, then with the lard. Its use is the same as the proceed^g but it is stronger.

From 5 to 15 gr are somet^{ly} given as a cathartic in cases requir^g a peculiar impression upon the liver but used for such purposes it should be admin^d with or speedily followed by a more certain purgative. It is used in wat^{er} by means of me^l thickened wth it for a good additⁿ to the chalk in diarrh^{ea} of children when the biliary secretⁿ is deficient or otherwise deranged.

Hydrargyrum cum Creta. Mercury 3ij. Prepared chalk 3v. rub together till the globules disappear, form a gray powd^r. a mild mercurial wash or a blue pill an alternative for children when the complaint is attend^d with deficient biliary secretⁿ indicat^d by white or clay col^{or} stools. used in diarrh^{ea} 3gr contain 3gr mer^{cury}. Childs dose 2 to 3 gr. it should not be given in pill with sub^l which become hard on keep^g. the consist^{cy} of the mass press^{es} the mer^{cury} into globules.

Hydrargyri Oxidum Nigrum. M^{ild} Chlor^{ide} of Merc^{cury} (Calomel). Potassa, aa 3iv. Wat^{er} Oj. Dissolve the Potassa in the wat^{er} & when the fregs shall have subsid^d pour off the clear solⁿ. to the add^d Chloride of Merc^{cury}. Stir till the black oxide is form^d: pour off the supernat^l liq^{or}. wash the black ox^{ide} with dist^d wat^{er}. dry by a gentle heat it consists of 13000. Mer^{cury} & 100000 oxyg^{en}. when 1st prep^d it is green^{ish} black, as found in shops of olive col^{or}. inod^{or}. tasteless & insol^{uble} in wat^{er} & alkaline solut^{ns}. alt^{er}native, sialagogue & purgative. alt^{er}ative dose 4 to 5 gr. It has no advantage over calomel & on the occasional presence of dent^{al} caries it is liable to operate harshly.

Hydrargyri Oxidum Rubrum. Mercury 3xxxvj. Nitric ac. f 3xv. Wat^{er} Oj. Dissolve the Merc^{cury} by a gentle heat in the ac. & wat^{er} previously mix^d: & w^{ash} to dryness. rub the dry mass to powd^r & heat it in a very shallow vessel till red vapors cease to rise. when pure it is a dent^{al} oxide (consist^{ng} of mercury & consist^{ng} of 100000. Mer^{cury} & 200000 oxyg^{en}. is in powd^r. of brill^{iant} red col^{or} with a shade of orange, a shin^g scaly appear^{ance}: acid taste, very slightly sol^{uble} in wat^{er}. is not used internally. in powd^r sprinkl^d on chancres & indolent, flebly, or fungous ulcers as a stim^{ulant} & escharotic or applied in form of ointm^{ent} for the same purposes. 1 part with 8 or 10 parts finely ly powd^r. sugar blown into the eye removes opacities of the cornea. the ointm^{ent} is prep^d by add^d 3j of ox^{ide} of Merc^{cury} in very fine powd^r to simple ointm^{ent} 3viii previously soften^d over a gentle fire & mix^d & lay long keep^g. the ointm^{ent} loses its fine red col^{or}. becom^{es} dark in consequence probably of the conversion of red ox^{ide} to black ox^{ide}. it is very useful skin medicine & much used in porrigo of the scalp, psoriasis & in chronic conjunctival ophthalmia especially when attend^d by thick^{ness} of the inner coat^{ing} of the eyelids or speck on the cornea, if found too stim^{ulant} it may be dilut^d in the last.

Hydrargyri Chloridum Mite. Prep. Merc^{cury} 3iiv. Sulf^{ur} ac. 3iij. Chloride of Sodium 3j ss. Dist^d Wat^{er} 3ss. dil^{ute} 3j of the Merc^{cury} with the sulf^{ur} ac till the sulf^{ur} of mer^{cury} is left dry. Rub this when cool with the remain^{ing} in an earthen ware mortar till entirely mix^d add the Chlor^{ide} of sod. & rub it with the other ingredients till the globules disappear. af^{ter}ward^s sublime: reduce the sublim^{ed} matter to a very fine powd^r. wash it frequently with br^{ack}l^{ish} dist^d wat^{er} till the wash^{ings} afford no precip^{itate} upon a solutⁿ for two in. & if it still ap^{pears} to be br^{ack}l^{ish} & a s^{light} redness of the wash^{ings}. it is not safe to contain a small part of corrosive sublimate hence the dist^d wat^{er} to wash the sub^l & powd^r till the wash^{ings} afford no precip^{itate}. the rem^{ain}ing. Prep^d: a buff^{ish} col^{or} powd^r. 3 gr. 7.2 but if prep^d as above or downward it is perfectly white.

Hydrazyl Sulphuretum Nigrum. Take of Merc^{ry} & sulph. rāā tt j. rub them to the till
all the red is disappear. Its precise chemical nature is unknown. Some consider it to be a br^o of
oxide with sulphur. It is a heavy, tasteless, insol. black powd. inodorous. It has a peculiar
effect^s & is used as a skin scrub. It is in the dose grv^r rxxx. It is a
very powerful & it must never be given with iron, as it is a
poison.

Iodinum.

[illegible]

Deer box of Mer^c (red precip^t) in muriatic vap^r to dry & dissolve the dry mass in water & pot^l. a small clear poss^l to his place from water & the black oxide. Double it by sublimatⁿ. It is a white crystalline white substance & very del^{ic} & very poisonous white permanent in the air. Vaste acid styptic metallic & durable. Sol in 20 parts cold & 3 lim^d wat. Sol in 2 1/2 parts cold & in equal weight of lim^d & alk^l & in 3 parts then. It is compat with many metals, the alk^l & their carb^s, soap, lime wat. & the muc^l. Nitrate of silic^l the rect^d of lead, the sulph^t of potassa & soda & all the hydracids. It produces precip^t in inf^l & decoctⁿ with chamomile horse radish, columbo, catechu, cinchona, rhubarb, senna, samarubar & oak bark. It is less apt to salivate than other mercurials. In poison does it produces burn^s of the throat, horrible pain of stom^l & bowels, thirst, anxiety, nausea,retch^s with vomit of bloody mucus, diarrh^a & bloody stools, small fre^l p^l die, cold sweats, delir^l, diff^l cult respiratⁿ, cramps in the abdomen, insensibility, convuls^s & death. Dosage. Fresh give the white of eggs beat up with the wat^r & vomit the patient as soon as possible. If eggs are not at hand, wheat flour & wat^r will answer, or milk besides these. Peruv^l bark, nux^l mac^l, pot^l sulph^t of iron & man filings & the stim pump. Besides mucilagin^s drinks in large quant^s. The consecutive inflam^t is treat^d by local & gen^l bleed^g - formed a new & cool mucilag^s drinks & the attend^g nerv^s sympt^s by opials. Med Prop^s. It is the most powerful of the mercurials. It is useful in ^{any} Syphilis & in cutaneous disease of leprosy character & in obdurate chronic rheumat^l. To obviate the irritatⁿ. It is apt to produce it is often associated with the antimonials, the compounds of mercury & arsenic, op^l & extract of hemlock. Extern^l it is stimulat^g & escharot^l a sol of 1/2 to 2 grs to wat 1 1/2 is used in a mixture in decoction in venereal sore throat & colly^r, in chronic venereal ophthalmia a sol of 1 or 2 grs to 2 1/2 wat is a wash for leprosy 5 to 10 grs in 2 1/2 wat is applied by means of a camel hair pencil to venereal ulcers of the throat & anus & chancre it is inferior to nitrate of silver, caustic potassa. Mixⁿ in the equal weight of sulph^t of zinc & sprinkled over the surf^l & the ulcer (in *syphilis maligna*) then cover it with a piece of lint saturat^d with tinct^l of myrr^l & the dress^l suff^l is renewed given in broad pill in the best form of admin^l. Mucilag^s drinks are gen^l given to obviate its irritatⁿ & purge.

Hydrargyri Sodium. Mercury 3j. Iodine 3v. H^lch^l Q. S. rub the Mer^c & iod^l together add enough rect^d to form a soft paste, & triturate till the globules disappear. Dry the iodide in the dark with a gentle heat keep it in dark air tight bottles. In the form of a yellowish white solid in wat^r & leech wort sol^l of cold of sodium. & in other is partially sol^l. It is a white & becomes blue & it has been given in syphilis & sc^l of ulcers syphilis. It is now frequently used in form of rub^l in indur^l & soft venous ulcers.

Hydrargyri Solutum Rubrum. Consist of Mer^c 3j. Juice of Sassa^{parilla} 5x. Dist^d Wat^r Oij.
Dissolve the chloride in Ciss^{er} & the J^{uice} in Oss^{es} of the nat^{ure} & mix the sol^{ns}. Collect the precip^{itate} upon a filter, wash
it with dist^d wat^r. Dry it & eat it be taken it is a cathartic & the J^{uice} is a sear^{ing} & p^{ro}duces in wat^r sol^{ns}
alcoh^{ol} & ins^{ol} of iodide of potash & of S^{ulphur} & several mercur^{al} salts. It is used for the same purposes. The
precipitate, namely, crocus & sc^{or} of iron sulph^{ur}, but it is much more active. It is a powerful irritant poison,
due to its increase to 4 gr. most used in gonorr^{ea}.

Hydrargyri Sulphas Flavius. Mer^c 3j. Sulph^{ur} 3vj. Mix in a glass vessel & boil by means of a sand
bath till a dry white mass remains. It is to be put & thrown into boil^{ing} wat^r. Pour off the super^{natant} liq^{uid}
& wash the precip^{itate} & repeat^{ed} in the hot wat^r till the dry. It is a basic sesqui^{valent} salt of the deut^{eride} of
Mercury. It is in pow^{der} of lemon yell^{ow} col^{or}. Taste slight^{ly} acrid & soluble in 200 parts of 60° wat^r. Used as an
alterative in glandular & indur^{ed} sy^{ph}il^{is}, as an emetic in chronic enlargement of the testicles. In these cases
it acts by retarding & is apt to act with violence & excit^{ed} pyrexia as an emetic in chronic ph^{aryn}gitis &
in diseases of the head & even in this way it som^{etimes} salivates.

Hydrargyrum Ammoniatum. Consist of Mer^c 3j. Dist^d wat^r Cong^{rua}. Solut^{ion} of ammonia 13vj.
Dissolve the chloride in the wat^r by aid of heat. To the solution cold add the solut^{ion} of ammonia frequently stir^{red}
wash the precip^{itate} till it becomes tasteless. Dry it. It is composed of 12 parts of mer^{cury} & 18 parts
of ammonia. It is a white powder & is soluble in 1000 parts of 60° wat^r. It is called ammonioden^{ite} & represents thus
 $NH_4^+ Hg^{2+} Cl^-$. The react^{ion} is as follows: $2NH_3 + HgCl_2 = NH_4Cl + HgCl$. It is in pow^{der} or pulverulent masses, white taste
at 1st earthy flow^{er} metal^{lic} ins^{ol} in wat^r & alcoh^{ol}. It is used p^{ro} in cutaneous erupt^{ions} as psora, prurigo & herpes in
the form of Unguent^{um} Hydrarg^{yr} Ammoniat^{um} thus prep^{ared}: Ammoniat^{um} Mer^c 3j. Simple ointm^{ent} 3ss. add the Mer^c to the
ointment previously softened & mix & put to use & mix.

Unguentum Hydrargyri Nitrat^{is}. Mercury 3j. Nitric ac^{id} 13x. Fresh Veat^{le} foot^{le} Oil 13x. Sassa^{parilla} 3ij.
Dissolve the Mer^c in the ac^{id} then melt the Oil & dist^{ill} together & when they begin to offer a pers^{piration} cool^{ed} the sol^{nt}
& mix. When 1st precip^{itate} is a beaut^{iful} yell^{ow} col^{or}. but on pers^{piration} it is apt to become red & green & mottled & it is
used as a stim^{ulant} & alterative. application in various forms of p^ores, as King^{dom} & sc^{or} & crusta lactea, psoriasis &
ph^{aryn}gitis in herpes & prurigo & infl^{ammation} of eye & eyelids & most with it cure the face or scalp &
other ulcerative & eruptive affect^{ions}. It is yel^{low} & g^{lossy} with hard before using & is in its use require^d to void
saliva. When hard & friable it must be rubbed up with fresh lard before use.

Hydrargyri Sulphuratum Album. Mer^c 3x. Sulph^{ur} 3vj. Mix the mer^{cury} with the well
beaten over the fire as soon as the mass becomes white remove the vessel from the fire & cover it with a cloth.
To prevent evaporation then rub the mass into a fine & sub^{tle} after a bisul^{phide} of mer^{cury} salt is in
the form of heavy bill^{ow} yell^{ow} masses of 1st m^{er} & 2nd red col^{or} & 3rd white ins^{ol} in wat^r & alcoh^{ol}.
In p^{re}par^{ation} it is then altered with red lead chalk & dragon's blood. The 1st of these is detect^{ed} by diss^{olving} in ac^{etic} acid
with in the case of p^{re}par^{ation} of a yell^{ow} precip^{itate} (iodide of lead) alcoh^{ol} takes up the col^{or} of drag^{on's} & the 2nd is in

2. *Red Iodide of Mercury—Hydrargyri Iodidum Rubrum, U.S.*—chemically, *binioidide of mercury*. Mode of preparation. Form—colour—relations to water and alcohol. Medical properties. Effects as a poison. Therapeutical applications. Dose, one-sixteenth to one-twelfth of a grain to begin with. An ointment official.

5. Salts.

1. *Yellow Sulphate of Mercury—Hydrargyri Sulphas Flavus, U.S.*—commonly called *Turpeth mineral*. Mode of preparation. Chemical nature. Form—colour—taste—insolubility. Dose, from half a grain to 1 grain as an alternative—from 2 to 5 grains as an emetic. Scarcely ever used at present for these purposes. Sometimes employed as an errhine, diluted with 5 parts of starch.

2. *Ammoniated Mercury—Hydrargyrum Ammoniatum, U.S.*—commonly called *white precipitate*. Mode of preparation. Chemical composition. Form—colour—insolubility. Used only externally. Purposes for which it is employed. Mode of application. An ointment made with it is official under the name of *ointment of ammoniated mercury*.

3. *Nitrate of Mercury*. Used only in the form of ointment. Mode of preparing the ointment of nitrate of Mercury (*Unguentum Hydrargyri Nitratis, U.S.*), commonly called *citrine ointment*. Colour of the ointment. Therapeutical applications. Frequently diluted with lard.

6. Sulphurets.

1. *Red Sulphuret of Mercury—Hydrargyri Sulphuretum Rubrum, U.S.*—commonly called *cinnabar*. In the powdered state called *vermilion*. Mode of preparation. Chemical constitution. Appearance in mass—weight—colour—colour of the powder—odour—taste—effects of heat—insolubility. Used only for fumigation. Mode of application.

2. *Black Sulphuret of Mercury—Hydrargyri Sulphuretum Nigrum, U.S.*—formerly *Ethiops mineral*. Mode of preparation. Chemical nature. Form—colour—odour—taste—insolubility. Scarcely ever used at present.

IODINE.—IODINUM. U.S.

Chemical nature of iodine. Origin and mode of preparation. Form—weight—colour—aspect of the surface—odour—taste—relation to water, alcohol, and ether, as solvents.

Effects upon the system. In small quantities it promotes the appetite, increases the strength of the pulse, operates gently on the bowels, and appears to act as a tonic. But if continued, it is found greatly to promote absorption, and at the same time to increase almost all the secretions, so that emaciation results, and goes on increasing with the use of the medicine. If still longer continued, it gives rise to derangements of the nervous system. Digestion is at length impaired, and the patient is worn out with hectic symptoms. When given in large doses, it produces the same effects in a greater degree, and the result is more speedy. In very large quantities it acts as a corrosive poison; but it is frequently rejected from the stomach, and therefore not necessarily fatal.

Therapeutical applications of iodine. Dose, one quarter to half a grain, three times a day, and gradually increased to one grain or more. Never used in powder. Dissolved either in alcohol or in a watery solution of the iodide of potassium. The *tincture* is official. Proportion of iodine to alcohol. Dose, from 10 to 20 drops. Cautions as to the age of the tincture, and the mode of keeping it.

Iodide of Potassium—Potassii Iodidum, U.S. Mode of preparing it. Form—colour—effect of exposure—taste—relation to water and alcohol as solvents. Possibly converted into *hydriodate of potassa* in solution. Dose, 3 to 5 grains; but given lately in much larger doses with impunity. Its solution has the property of dissolving iodine. A convenient method of administering the medicine thus afforded.

Compound Solution of Iodine—Liquor Iodini Compositus, U.S.—identical with *Lugol's solution*, given in the dose of 6 drops repeated twice a day and gradually increased.

Solution of Iodide of Arsenic and Mercury. Mode of preparation. Colour. Therapeutical uses. Danger from over-doses. Dose, 5 to 20 drops three times a day.

Numerous preparations of iodine besides those mentioned have been used. Such are the *iodides of iron, of lead, of mercury, of starch, of sulphur, and of zinc*, and the *iodohydrargyrate of potassium*. Reasons for thinking most of these superfluous.

Iodine is externally used in the way of bath or ointment. Proportions of the ointment, ℥j. of iodine and ℥j. of lard. Effect on the skin. A compound ointment of Iodine is also official, containing 15 grains of iodine and 30 of iodide of potassium in ℥j. of lard.

CLASS XXIII.

ANTACIDS.

General Observations.

Substances which are capable of combining with and neutralizing acids. Hence all salifiable bases are antacids; but the alkalies, alkaline earths, and their carbonates, are the only ones used medicinally with this view. They are useful by correcting excess of acidity in the primæ viæ, and probably also in the blood. They serve also to correct or prevent acidity in the urine, and thus prove useful in the uric acid form of gravel.

CARBONATES OF POTASSA.

These have been already fully described. As antacids, the carbonate is given in the dose of from 10 to 30 grains, the bicarbonate, from 20 to 40 grains. The infusion of hickory ashes and soot, sold in the shops under the name of *alkaline infusion*, is an impure solution of the carbonate of potassa. Mode of preparation and uses. Dose, fʒij. three times a day.

CARBONATES OF SODA.

1. *Carbonate of Soda*—*Sodæ Carbonas, U.S.* Source, and mode of preparation. Shape of the crystals. Effect of exposure. Taste—solubility in water—alkaline reaction. Proportion of water of crystallization. Inequality of the salt as found in the shops. Better to use the dried carbonate. Dose of the anhydrous salt, from 10 to 30 grains—of the crystallized, from 30 to 60 grains.

2. *Bicarbonate of Soda*—*Sodæ Bicarbonas, U.S.* Formerly called *supercarbonate of soda*. Mode of preparation. As usually found in the shops not strictly a bicarbonate. Taste and solubility. Advantages as an antacid and antilithic. Dose, from ʒss. to ʒj. Pleasantly administered in carbonic acid water with ginger syrup.

AMMONIA.

Sometimes used as a stimulant antacid. Given in the form of aqueous or alcoholic solution. *Solution of Ammonia (Liquor Ammonia, U.S.)* and *Spirit of Ammonia (Spiritus Ammonia, U.S.)* are official preparations. Seldom used internally. The *Aromatic spirit of Ammonia (Spiritus Ammonia Aromaticus, U.S.)* is much employed. Uses. Dose, from 15 to 30 drops, largely diluted. *Carbonate of ammonia* may also be used as an antacid. Before treated of.

LIME.—CALX. U.S.

Employed in solution under the name of *Lime-water—Liquor Calcis, U.S.* Mode of preparing lime-water. Effects of exposure to the air. Mode of keeping it. Proportion of lime dissolved. Taste. Therapeutical uses. Seldom given alone. Use of lime-water and milk. Effect of this mixture on the taste of the lime-water.

Carbonate of Lime much used, either in the form of *Chalk (Creta, U.S.)*, or of *Oyster Shells (Testa, U.S.)*. Mode of preparing chalk. Called by the United States Pharmacopœia, when prepared, *Creta Præparata*. Form—taste—insolubility in pure water. Solubility in water impregnated with carbonic acid. Combines astringency with antacid properties. Therapeutical applications. Given in powder or suspended in water by means of gum Arabic. Dose, from 10 to 20 or 30 grains, every hour or two, or less frequently.

Mode of preparing oyster shells. Official title when prepared, *Testa Præparata, U.S.* Difference in composition from chalk. Ground of preference in certain cases. Dose and mode of administration the same.

MAGNESIA.

Already spoken of in relation to its preparation, sensible and chemical properties, and uses as a laxative. As an antacid it is one of the most powerful, in consequence of its low combining number. Cases to which it is applicable. Dose, from 10 grains to a drachm. The carbonate is occasionally used in double the dose.

CLASS XXIV.

ANTHELMINTICS.

General Observations.

Substances which have the property of poisoning or debilitating worms in the alimentary canal, and thus rendering them more easy of expulsion. In relation to their mode of operation, it is probable that some act by a directly poisonous influence upon the worm, others by a mechanical agency. In this view of the class of anthelmintics, all those medicines are not included in it which are employed in the expulsion of worms, but such only as operate advantageously, in consequence not of their relations to the human system, but of that which they bear to the worms themselves.

PINK-ROOT.—SPIGELIA. U.S.

Root of *Spigelia Marilandica*—an herbaceous perennial plant, growing in the Southern States. General character of the plant. The whole of it is possessed of anthelmintic virtues, but the root is most powerful, and is the only part recognised by the Pharmacopœia.

Shape and aspect of the root—colour—colour of the powder—odour—taste—relations to water and alcohol—effects of exposure.

Effects on the system. Effects on the worms. Modes of administration. Dose of the powder for a child from 2 to 4 years old, from 10 to 20 grains, repeated night and morning for three or four days, and then followed by a cathartic. The powder is sometimes combined with calomel in the proportion of 12 grains of the former to 4 of the latter. Dose of the infusion made with \mathfrak{z} ss. of the root to Oj. of water, for a child, from $\mathfrak{f}\mathfrak{z}$ ss. to $\mathfrak{f}\mathfrak{z}$ j., two or three times a day. The infusion is often associated with senna, of which \mathfrak{z} ss. may be added to the preparation, and the same dose given.

PRIDE OF CHINA.—AZEDERACH. U.S.

Bark of the root of *Melia Azederach*, or *Pride of China*, a native of the East Indies, and naturalized in our Southern States. Used chiefly in the South, seldom or never in the Northern States. Effects of the bark on the system. Effects on the worms. Used in decoction made by boiling Oij. of water with \mathfrak{z} iv. of the fresh bark to Oj. Dose for a child, $\mathfrak{f}\mathfrak{z}$ ss. every two or three hours till it operates, or night and morning for several days, and then followed by a cathartic.

WORMSEED.—CHENOPODIUM. U.S.

Seeds of *Chenopodium anthelminticum*, or Jerusalem oak. Those also of the *C. ambrosioides* are used. Both of these plants are indigenous herbaceous perennials. Odour and taste of the plants. These properties reside in a volatile oil which pervades the whole herb. The seeds only are officinal.

Size and shape of the seeds—colour—colour when deprived of their outer covering.

Effects on the system. Effects on the worms. Administered in substance, bruised or powdered, in the dose of \mathfrak{ij} . or \mathfrak{ij} j. for a child. The volatile oil is officinal, under the name of *Oleum Chenopodii*. Mode of procuring it. Colour and odour of the oil. Dose, from 4 to 8 drops for a child, repeated morning and evening.

COWHAGE.—MUCUNA. U.S.

Product of *Mucuna pruriens*—a climbing West India plant. Shape and size of the fruit. External covering of hairs or bristles. Colour of these and mode of separating. Mode in which they affect the worms. Administered in electuary. Dose of the electuary for an adult, \mathfrak{z} ss., for a child 3 or 4 years old, \mathfrak{z} j.

MALE FERN.—FILIX MAS. U.S.

Root of *Aspidium Filix Mas*, or male fern, growing in Europe and North America. Character of the root—shape in its unbroken state—condition as usually found in the shops—colour—odour—taste—relations to water, alcohol, and ether. Effects of time upon

its virtues. Effects on the system. Mode of action on the worm. Peculiar application. Scarcely ever used in this country.

BARK OF POMEGRANATE ROOT.—GRANATI RADICIS CORTEX. U.S.

Bark of the root of *Punica Granatum*, or pomegranate. Relations of the root to water. Effects upon the system. Peculiar vermifuge application. Administered in decoction made by boiling ℥ij. of the bark in Oij. of water to Oj., one third of which, repeated every half hour till the whole is taken, is the dose for an adult.

OIL OF TURPENTINE.

Powerfully anthelmintic. Particular vermifuge application. Dose for an adult, from f℥ss. to f℥ij., or even f℥ijj. Effects produced upon the system by this dose. Followed in 2 or 3 hours by a dose of castor oil.

In small doses of 4 or 5 drops, repeated several times a day, the oil is useful in the stomachic worms of children.

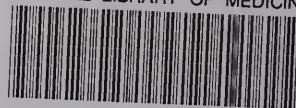
TIN.—STANNUM. U.S.

Used in the form of powder. Mode of preparing powdered tin—*Pulvis Stanni*, U.S. Appearance. Mode of operating upon the worms. Particular application. Dose, from ʒj. to ℥j.





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